Sta 4 START 0042306

OCT 0 2 1995 ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT № 613120

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Characterization Plans, Coordination and Reports	N/A
5. Proj./Prog./Dept./Div.: Tank 241-T-109/Waste Management/CPCR/Technical Basis Characterization	6. Cog. Engr.: John M. Conner	7. Purchase Order No.: N/A

8. Originator Remarks:
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9. Equip./Component No.: N/A

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1	WHC-SD-WM-DP-144	N/A	0	45-Day Safety Screening Results for Tank 241-T-109, Auger Samples 95-AUG-040 and 95-AUG-041	Q	2	1	1

16. KEY

Approval Designator (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
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(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
2	1	Cog.Eng. J.M. Conner	[signature]	9-29-95							
2	1	Cog. Mgr. J.G. Kristofzski	[signature]	9/29/95							
2	1	QA W.A. Hendrickson	W.A. [signature]	9/29/95							
		Safety									
		Env.									
2	1	LAB A.D. Rice	[signature]	9-29-95							

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18.	19.	20.	21. DOE APPROVAL (if required) Ctrl. No.
A.E. Young [signature] 9-19-95 Signature of EDT Originator Date	Authorized Representative Date for Receiving Organization	J.G. Kristofzski [signature] 9/29/95 Cognizant Manager Date	[] Approved [] Approved w/comments [] Disapproved w/comments

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BD-7400-172-1

RELEASE AUTHORIZATION

Document Number:	WHC-SD-WM-DP-144, REV 0
Document Title:	45-Day Safety Screening Results for Tank 241-T-109, Auger Samples 95-AUG-040 and 95-AUG-041
Release Date:	10/2/95

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara Broz — 10/2/95

9513383.2928

SUPPORTING DOCUMENT

1. Total Pages 44

2. Title	3. Number	4. Rev No.
45-Day Safety Screening Results for Tank 241-T-109, Auger Samples 95-AUG-040 and 95-AUG-041	WHC-SD-WM-DP-144	0

5. Key Words	6. Author
45-Day, Safety Screening, Safety Screening Results, Tank 241-T-109, Tank T-109, T-109, Auger Samples, 95-AUG-040, 95-AUG-041	Name: John M. Conner Signature: J M Conner Organization/Charge Code 75310/MDR21

7. Abstract

N/A

8. RELEASE STAMP

OFFICIAL RELEASE BY WHC
DATE OCT 0 2 1995
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3

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-144, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREENING RESULTS FOR TANK 241-T-109, AUGER SAMPLES 95-AUG-040 AND 95-AUG-041

Date Printed: SEPTEMBER 29, 1995

TABLE OF CONTENTS

This Document consists of pages 1 through 41.

NARRATIVE

45-DAY SAFETY SCREENING REPORT FOR TANK 241-T-109, AUGER SAMPLES 95-AUG-040 AND 95-AUG-041

ANALYTICAL SUMMARY

Two auger samples were taken from tank 241-T-109 (T-109). The samples were received at the 222-S Laboratories and underwent safety screening analyses, consisting of differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), and determination of total alpha activity. The results were compared to the safety screening limits at a confidence level of 95%. Two of the samples submitted for moisture content determination by thermogravimetric analysis (TGA) did not meet the minimum criterion of 17 weight percent water stated in the Sampling and Analysis Plan (SAP) [1]. Written notification was provided to all appropriate parties as required in the SAP. All analytical results for the other safety screening analyses (DSC and total alpha analysis) were within the action limits stated in the SAP. The low moisture content of the samples is not a cause concern, as moisture is necessary only as a mitigating factor in the case of an energetic event. The lack of exothermic activity (no exotherms detected by DSC for any sample) precludes an exothermic event.

Based on the results of combustible gas monitoring prior to auger sampling, the T-109 vapor space is at zero percent of the Lower Explosive Limit (LEL). Per the criteria (energetics, criticality, and flammability) in the newly revised *Safety Screening Data Quality Objective* (DQO) [2], the results of the auger sampling event indicate that the tank is "safe."

SCOPE

This document serves as the 45-day report deliverable for the tank T-109 auger samples collected on August 18 and 21, 1995 (samples 95-AUG-040 and 95-AUG-041). The 222-S Laboratories received, extruded, and analyzed each sample in accordance with the SAP [1]. Included in this report are the primary safety screening results obtained from the analyses, and copies of all DSC and TGA raw data scans as requested in the SAP.

No additional testing to support safety screening analyses is required. Any additional analyses conducted by the 222-S Laboratories on these auger samples will be included in a revision to this report. The T-109 samples are being further analyzed for certain chemical constituents in accordance with the SAP.

FLAMMABILITY SCREENING

Prior to intrusion into a tank, the working zone above the tank and the vapor space of the tank are screened for flammability issues. The results of combustible gas monitoring of the vapor space of tank T-109 are presented in Table 1. This measurement is conducted in the field and recorded in the work package (work package for T-109 auger sampling is #WS-95-00109). These results demonstrate that there were no flammability concerns in the vapor space of tank T-109 at the time of the sampling event.

Table 1. Characteristics of T-109 Vapor Space as Determined by Combustible Gas Monitoring Through Riser 6.

Measurement	Result
Total Organic Carbon (TOC)	< 1 ppm
Lower Explosive Limit (LEL)	0% of LEL
Oxygen (O_2)	21.0%
Ammonia (NH_3)	0 ppm

SAMPLE RECEIPT, EXTRUSION, AND SUBSAMPLING

95-AUG-040

Auger sample 95-AUG-040 was collected from riser 6 of tank T-109 on August 18, 1995 and extruded on August 24, 1995. Most of the sample fell onto the extrusion tray. The bulk of the sample appeared to come from flutes 1-6 at the top of the auger, with only a thin coating on the remaining flutes. A total of 67.5 g of dirty, white, crystalline solids were recovered. A subsample was taken for an immediate, unhomogenized TGA analysis as required by the SAP. The remainder of the sample was homogenized and subsampled for further laboratory analyses and archiving. Due to the relatively low recovery, the sample was not divided into subsegments, but was analyzed on a whole-segment basis.

95-AUG-041

Auger sample 95-AUG-041 was collected from riser 2 of Tank T-109 on August 21, 1995, and extruded on August 25, 1995. Most of the sample fell onto the extrusion tray. A total of 232.5 g of solids was recovered. The sample was divided into upper and lower half-segments, with the upper half appearing to be gray-black crystals and the lower half appearing to be dirty white crystals. Subsamples were taken from each half-segment for unhomogenized TGA analyses as required in the SAP. The remaining material was subsampled into upper and lower half-segments, homogenized, and subsampled further for laboratory analyses and archiving.

Subsamples of each half-segment were then recombined and subsampled for additional (non-safety screening) laboratory analyses and for shipment to Pacific Northwest Laboratory for use in sludge washing studies.

ANALYTICAL RESULTS

THERMOGRAVIMETRIC ANALYSIS (TGA)

Three unhomogenized and three homogenized samples were submitted for moisture content determination by TGA. Samples S95T001616 and S95T001626 were performed using procedure LA-514-114, Rev C-0. The remaining four TGA samples were performed using procedure LA-560-112, Rev. B-0. The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans are attached. Per the revised safety screening DQO [2], the sample results were compared to the action limit at a 95% confidence level. This is more stringent than the requirements of the SAP, which required comparison at a 90% confidence level. These comparisons are presented in Attachment 1.

The lower 95% confidence level for two of the samples fell below the limit of 17 weight percent water stated in the SAP. These two samples were the immediate, unhomogenized sample, and the homogenized sample from auger 95-AUG-040 (samples S95T001597 and S95T001600). Since all DSC results on these auger samples were zero J/g (no exotherms detected), the low moisture content of the samples is not a cause for concern. In fact, inspection of the thermograms (attached) reveals that the weight loss curves for these two samples were integrated conservatively (integrated only up to a slight inflection of the curves at about 105 °C). Had these thermograms been integrated out to approximately 170 °C as was done for samples S95T001616 and S95T001626 from auger 950AUG-041, the moisture results would have been between 40% and 50%.

Three standards were run with these samples. The percent recovery for each standard analyzed was within the 90-110% range specified in the SAP. The results are presented in the summary tables.

DIFFERENTIAL SCANNING CALORIMETRY (DSC)

Three samples were submitted for determination of energetics by DSC. Sample S95T001600 was performed using procedure LA-514-114, Rev. C-0 (any exotherms from this sample would be evident as decreases from the baseline of the thermogram). Samples S95T001618 and S95T001629 were performed using procedure LA-514-113, Rev. C-0 (any exotherms from these samples would be evident as increases from the baseline of the thermogram). The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans are attached. None of the samples exhibited exotherms. Since none of the samples exhibited any exotherms, the statistical calculation of an upper 95% confidence level for each sample is unnecessary.

Two standards were run with these samples. The percent recovery for each standard analyzed was within the 90-110% range specified in the SAP. The results are presented in the summary tables.

TOTAL ALPHA

Three solids samples were submitted for total alpha analysis per procedure LA-508-101, Rev. D-2. The samples were fused per procedure LA-549-141, Rev. D-0 prior to analysis. Two fusions were prepared per sample (for duplicate results). Each fused dilution was analyzed twice; the results were averaged and reported as one value. The highest result returned was 0.0219 μCi/g, over three orders of magnitude below the action limit of 41 μCi/g. The upper 95% confidence level for each sample has been calculated and is presented in Attachment 1. Comparison to the limit at a 95% confidence level is more stringent than the requirements of the SAP, which required comparison at a 90% confidence level. All of the adjusted results are far below the action limit.

Results for the two blanks run with these samples were below detection limits. The two standards run with these samples exhibited recoveries within the 90-110% range specified in the SAP. A spike was run with each of the three samples. Spike recoveries ranged from 79.30% to 83.30%, which, although somewhat low, are within the laboratory control range of 75-125%. Reruns to improve spike recovery were deemed unnecessary as the sample results were far below the action limit. These quality control results are presented in the summary tables.

Project Coordinator: John M. Conner

REFERENCES

[1] J. M. Conner, *Tank 241-T-109 Auger Sampling and Analysis Plan*, WHC-SD-WM-TSAP-014, Rev. 0, Westinghouse Hanford Company, Richland, Washington, June 15, 1995.

[2] G. T. Dukelow, et al., *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, Washington, August 31, 1995.

Westinghouse Hanford Company ATTACHMENT 1 (page 1 of 2) **Internal Memo**

From: Process Chemistry and Statistics 75764-PCS95-083
Phone: 373-4034 T6-07
Date: September 27, 1995
Subject: 95% CONFIDENCE INTERVALS FOR TANK T-109

To: J. M. Conner R2-12

cc: L. Jensen R2-12
J. R. Jewett T6-06
J. G. Kristofzski R2-12
T. L. Welsh T6-07
RDC File/LB

Confidence intervals were computed for each sample number from tank T-109 analytical data per your request. The sample numbers and confidence intervals are provided in Tables 1 and 2.

The lower limit (LL) of a one-sided 95% Confidence Interval for the mean is

$$\hat{\mu} - t_{(n-1,0.95)} * \sqrt{\frac{\hat{\sigma}^2}{n}}$$

and the upper limit (UL) of a one-sided 95% Confidence Interval for the mean is

$$\hat{\mu} + t_{(n-1,0.95)} * \sqrt{\frac{\hat{\sigma}^2}{n}}.$$

For these two equations, $\hat{\mu}$ is the arithmetic mean of the data, n is the number of observations, $\hat{\sigma}^2$ is the variance of the data and $t_{(n-1,0.95)}$ is a quantile from Student's t distribution with $n-1$ degrees of freedom and 0.95 confidence level.

For the tank T-109 data (per sample number), n is two and $t_{(1,0.95)}$ is 6.314 for a one-sided 95% confidence interval.

For the thermogravimetric analysis (TGA) data, the lower limit will be used to test the null hypothesis that the mean percent water is less than or equal to 17 percent. For the Total Alpha data, the upper limit will be used to test the null hypothesis that the mean concentration is greater than or equal to 41 μCi/g.

The lower limit of the 95% confidence interval for each sample number based on the TGA data is listed in Table 1. Each confidence interval can be used to make the following statement. If the lower limit is greater than 17%,

J. M. Conner

then one would reject the null hypothesis that the percent water is less than or equal to 17% at the 0.05 level of significance.

Table 1. 95% Confidence Interval Lower Limits for TGA for T-109.

Sample Number and Description	$\hat{\mu}$ (wt%)	$\hat{\sigma}^2/n$	LL (wt%)
S95T001597 - AUG-040, Riser 6, WS (Mettler)	16.22	0.42	12.12
S95T001600 - AUG-040, Riser 6, WS (Mettler)	12.46	0.06	10.91
S95T001616 - AUG-041, Riser 2, LH (Perkin)	45.43	1.16	38.64
S95T001618 - AUG-041, Riser 2, LH (Mettler)	42.57	10.21	22.39
S95T001626 - AUG-041, Riser 2, UH (Perkin)	50.53	2.02	41.56
S95T001629 - AUG-041, Riser 2, UH (Mettler)	49.09	0.05	47.73

AUG Auger
WS Whole Segment
UH Upper Half of Segment
LH Lower Half of Segment
LL Lower Limit

The upper limit of the 95% confidence interval for each sample number based on the Total Alpha data is listed in Table 2. Each confidence interval can be used to make the following statement. If the upper limit is less than 41 μCi/g, then one would reject the null hypothesis that the Total Alpha is greater than or equal to 41 μCi/g at the 0.05 level of significance.

Table 2. 95% Confidence Interval Upper Limits for Total Alpha for T-109.

Sample Number and Description	$\hat{\mu}$ (μCi/g)	$\hat{\sigma}^2/n$	UL (μCi/g)
S95T001612 - AUG-040, Riser 6, WS	2.05E-02	1.96E-06	2.93E-02
S95T001619 - AUG-041, Riser 2, LH	7.32E-03	4.64E-06	2.09E-02
S95T001630 - AUG-041, Riser 2, UH	6.38E-03	2.25E-08	7.33E-03

AUG Auger
WS Whole Segment
UH Upper Half of Segment
LH Lower Half of Segment
UL Upper Limit

Confidence intervals could not be performed on the differential scanning calorimetry (DSC) data, since all of the results were zero.

If you have any questions, please call me at 373-4034.

RD Cromar

R. D. Cromar, Statistician
Process Chemistry and Statistics

rdc

SAMPLE DATA SUMMARY

INTERIM

45-Day Safety Screening Report
T-109

CORE NUMBER: n/a
SEGMENT #: 95-AUG-040

SEGMENT PORTION: Immediate Sampling (to check moisture loss)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001597			% Water by TGA using Mettler	%	17.00	115.0	101.1	n/a	15.57	16.87	16.22	8.01	n/a	n/a	n/a

W Whole Segment: W Whole Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001600			% Water by TGA using Mettler	%	17.00	115.0	101.1	n/a	12.79	12.21	12.46	3.93	n/a	n/a	n/a
S95T001600			DSC Exotherm on Perkin Elmer	Joules/g	-9.9e+01	480.0	95.85	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T001612		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.00	106.4	<9.61e-04	1.91e-02	2.19e-02	2.05e-02	13.7	79.30	2.38e-03	20.2

=> Limit violated
=> Selected Limit

INTERIM

45-Day Safety Screening Report
T-109

CORE NUMBER: n/a
SEGMENT #: 95-AUG-041

SEGMENT PORTION: Immediate Sampling (to check moisture loss)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001616			% Water by TGA on Perkin Elmer	%	17.00	115.0	100.5	n/a	44.35	46.50	45.42	4.73	n/a	n/a	n/a
S95T001626			% Water by TGA on Perkin Elmer	%	17.00	115.0	100.5	n/a	49.11	51.95	50.53	5.62	n/a	n/a	n/a

U Upper Half of Segment: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001629			% Water by TGA using Mettler	%	17.00	115.0	100.9	n/a	48.87	49.30	49.08	0.88	n/a	n/a	n/a
S95T001629			DSC Exotherm using Mettler	Joules/g	-9.9e+01	480.0	103.3	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T001630		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.00	108.1	<1.32e-03	9.47e-03	5.16e-03	7.31e-03	58.9	81.90	1.75e-03	25.8

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001618			% Water by TGA using Mettler	%	17.00	115.0	100.9	n/a	39.37	45.76	42.56	15.0	n/a	n/a	n/a
S95T001618			DSC Exotherm using Mettler	Joules/g	-9.9e+01	480.0	103.3	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T001619		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.00	108.1	<1.32e-03	6.23e-03	6.53e-03	6.38e-03	4.70	83.30	1.58e-03	31.5

=> Limit violated
=> Selected Limit

INORGANIC ANALYSES

LABCORE Data Entry Template for Worklist# 2118

Analyst: PJM **Instrument:** DSC0 3 **Book #** 12 N14A

Method: LA-514-114 Rev/Mod C-0

WHC-SD-WM-DP-144, REV. 0

Worklist Comment: Please run T-109 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	27.27	N/A	Joules/g
95000121	T-109	2	SAMPLE	S95T001600	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000121	T-109	3	DUP	S95T001600	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2118

See Attached for Signature
Analyst Signature **Date** 9/6/95

Analyst Signature 9-7-95 **Date**

Verified 9/7/95. Jean M. Frye

Data Entry Comments:
S95T001600 has endotherm of 1266 J/g at 125°C; duplicate has endotherm of 1572 J/g at 126°C. JM Frye

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2118

Analyst: R McCown 1/4 **Instrument:** DSC0 _____ **Book #** 12W14A

Method: LA-514-~~113~~ Rev/Mod C-0 (Rev 9/3/95)

WHC-SD-WM-DP-144, REV. 0

Worklist Comment: Please run T-109 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	27.27	N/A	Joules/g
95000121	T-109	2	SAMPLE	S95T001600	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000121	T-109	3	DUP	S95T001600	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2118

R McCown 9/3/95
Analyst Signature **Date**

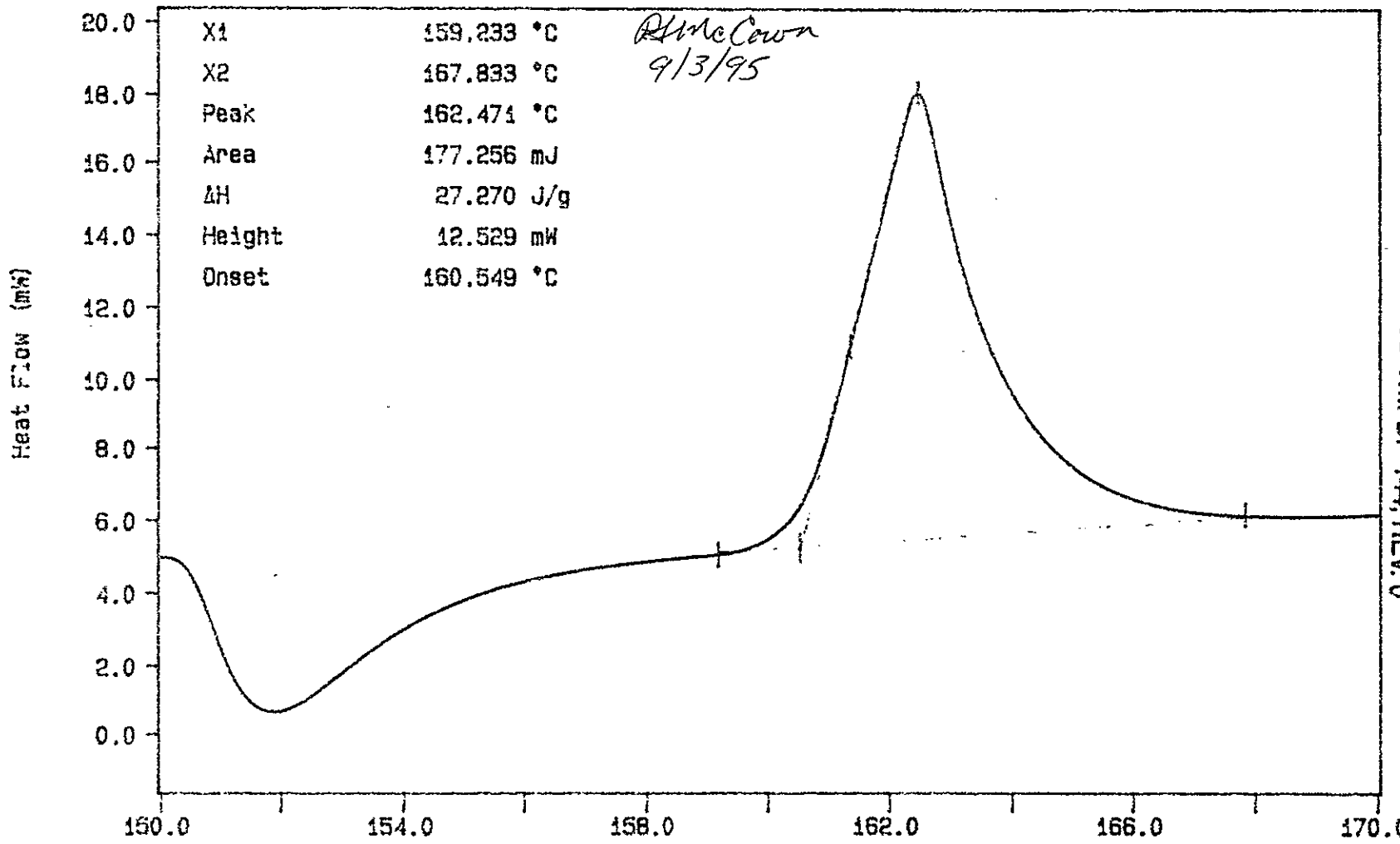
_____
Analyst Signature **Date**

Data Entry Comments:
S95T001600 has endotherm @ 216 J/g at 125°C; duplicate has endotherm @ 137 J/g at 126°C. J M Faye

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: IND090303 Sun Sep 3 09:32:02 1995
Sample Weight: 6.500 mg
12N14A Indium at 10C/min

BEST AVAILABLE COPY



N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

PJ MCCOWN
PERKIN ELMER
222-S Lab
Sun Sep 3 09:34:00 1995

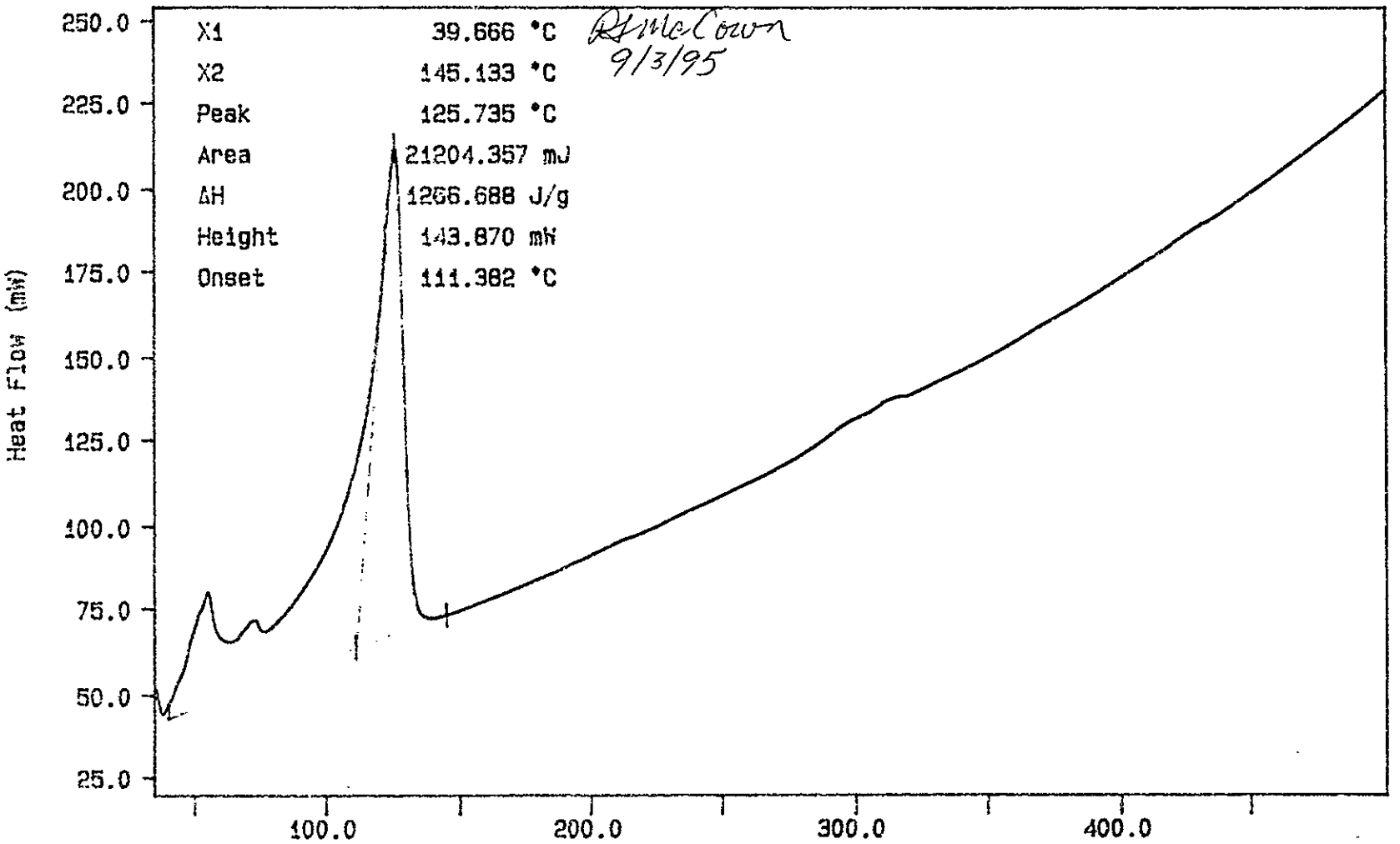
WHC-SD-WM-DP-144, REV. 0

9513383.2944

14

Curve 1: DSC
File info: qsav2 Sun Sep 3 12:09:59 1995
Sample Weight: 16.740 mg
S95T001600 SAMPLE

BEST AVAILABLE COPY



RJ McCown 9/3/95

exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN ELMER
222-S Lab
Sun Sep 3 12:12:30 1995

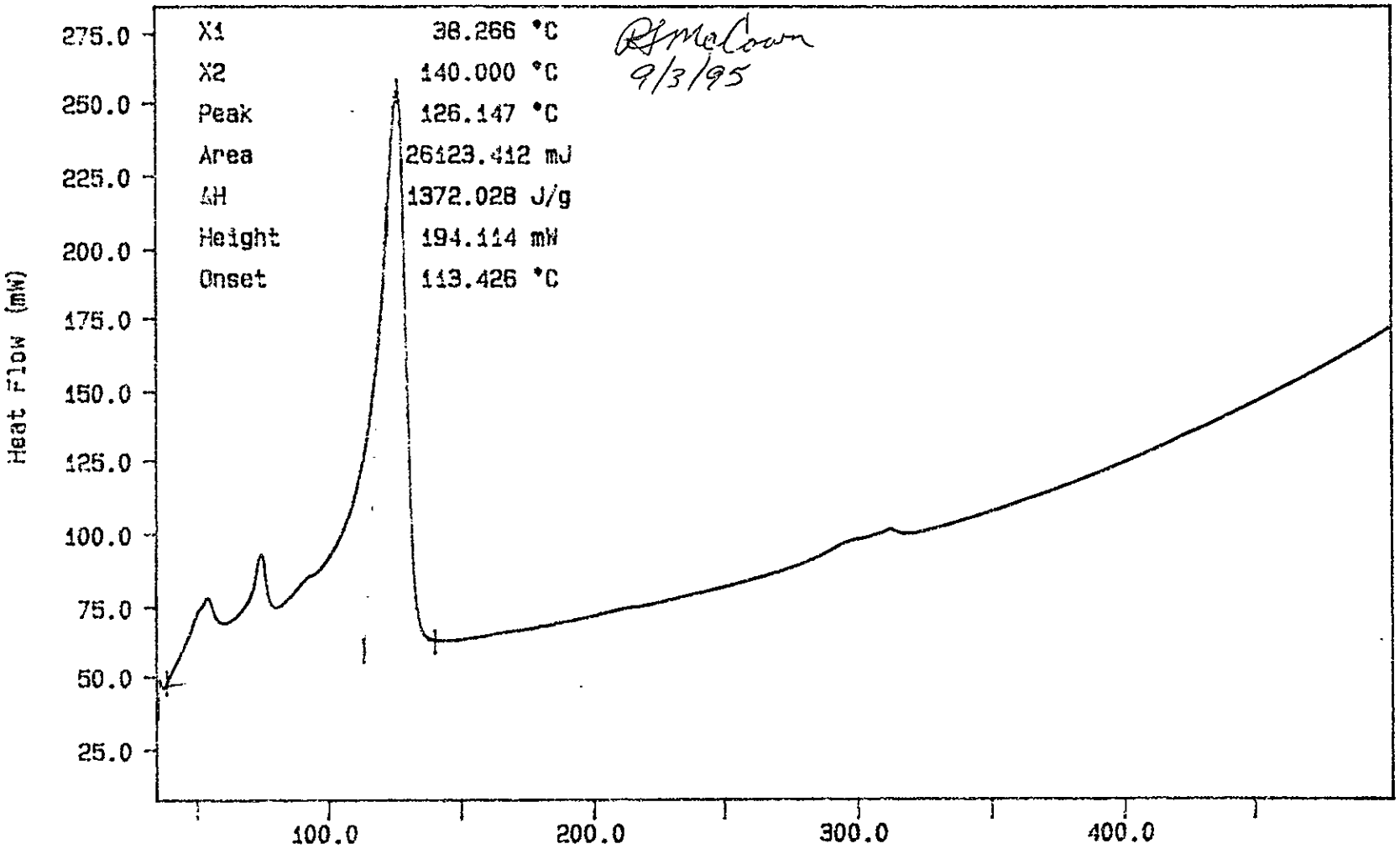
15

WHC-SD-WM-DP-144, REV. 0

9513383.2945

Curve 1: DSC
File info: SAM090302 Sun Sep 3 13:19:54 1995
Sample Weight: 19.040 mg
S95T001600 DUPLICATE

BEST AVAILABLE COPY



LABCORE Data Entry Template for Worklist# 2138

Analyst: RJMcCown **Instrument:** DSC0 1 **Book #** 12N14A

Method: LA-514-113 Rev/Mod C-0

Worklist Comment: Please run T-109 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	SOLID	28.45	29.4	N/A	Joules/g
95000121	T-109	2 SAMPLE	S95T001618	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000121	T-109	3 DUP	S95T001618	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g
95000121	T-109	4 SAMPLE	S95T001629	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000121	T-109	5 DUP	S95T001629	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2138

RJMcCown 9/3/95
Analyst Signature **Date**

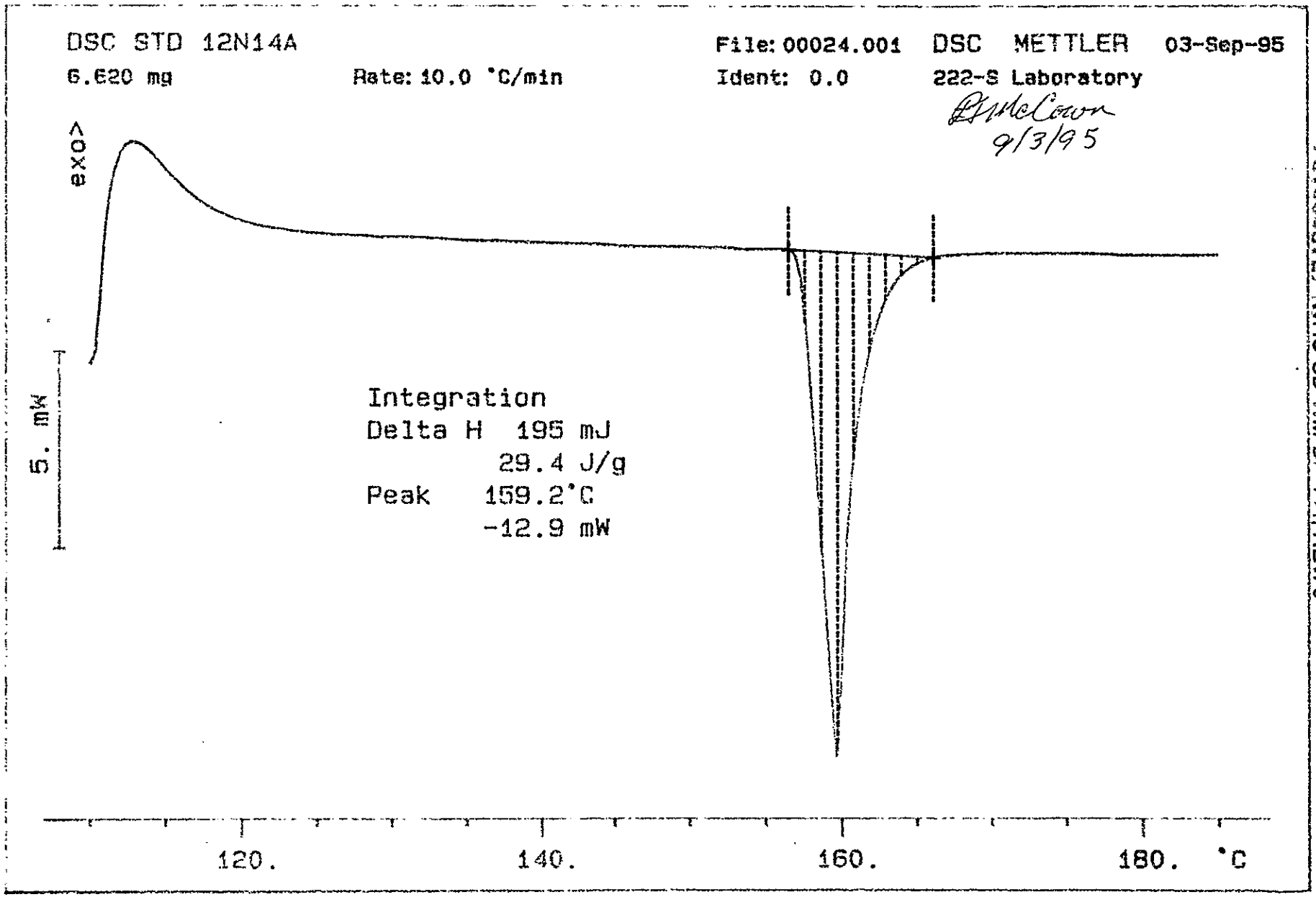
Analyst Signature 9-5-95 **Date**

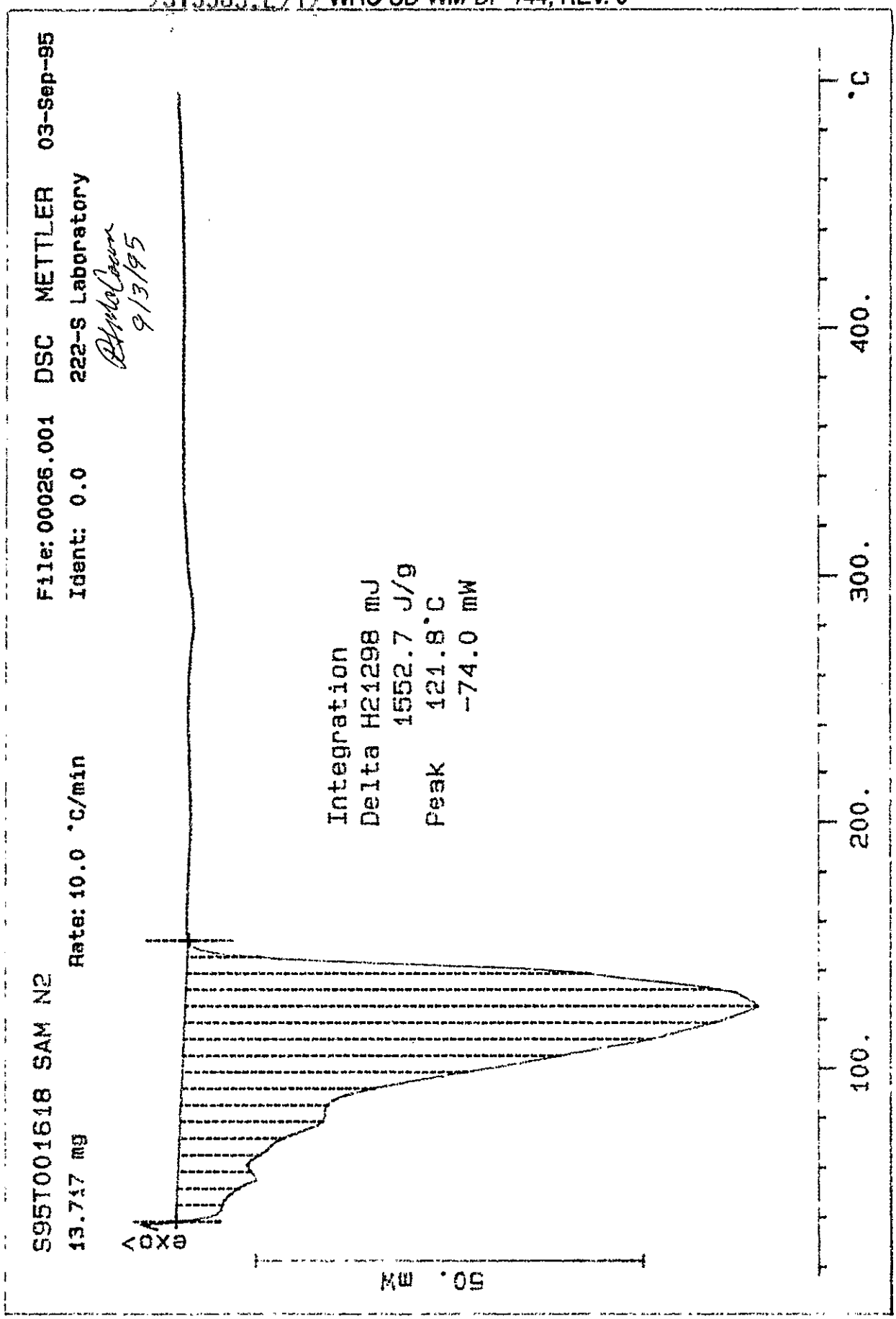
Verified J. M. Luge 9/7/95

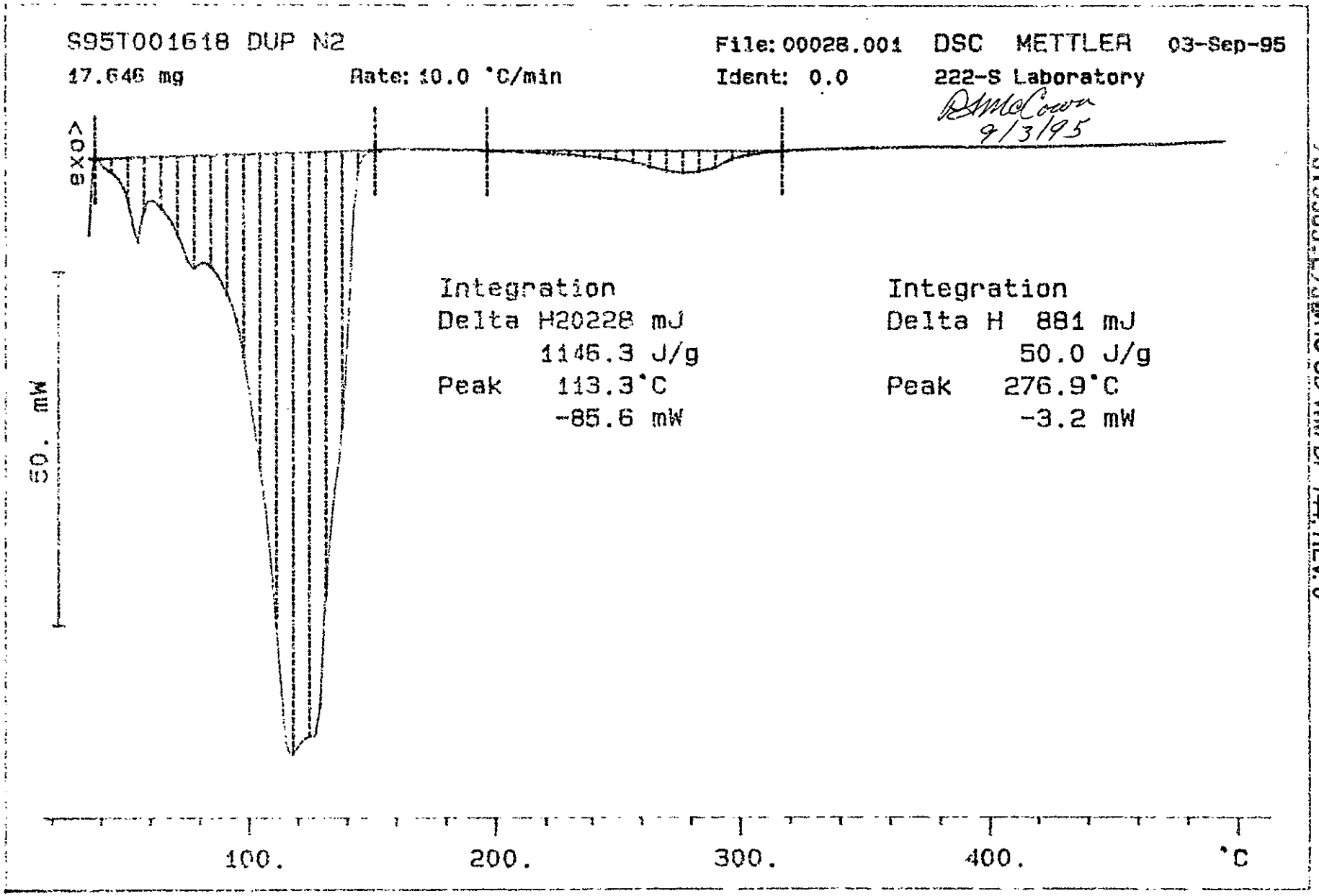
Data Entry Comments:
S95T001618 SAM has endotherm 1552.7 J/g at 121.8°C; DUP has 1146.3 J/g at 113.3°C endotherm and endotherm of 50.0 J/g at 276.9°C. JMF

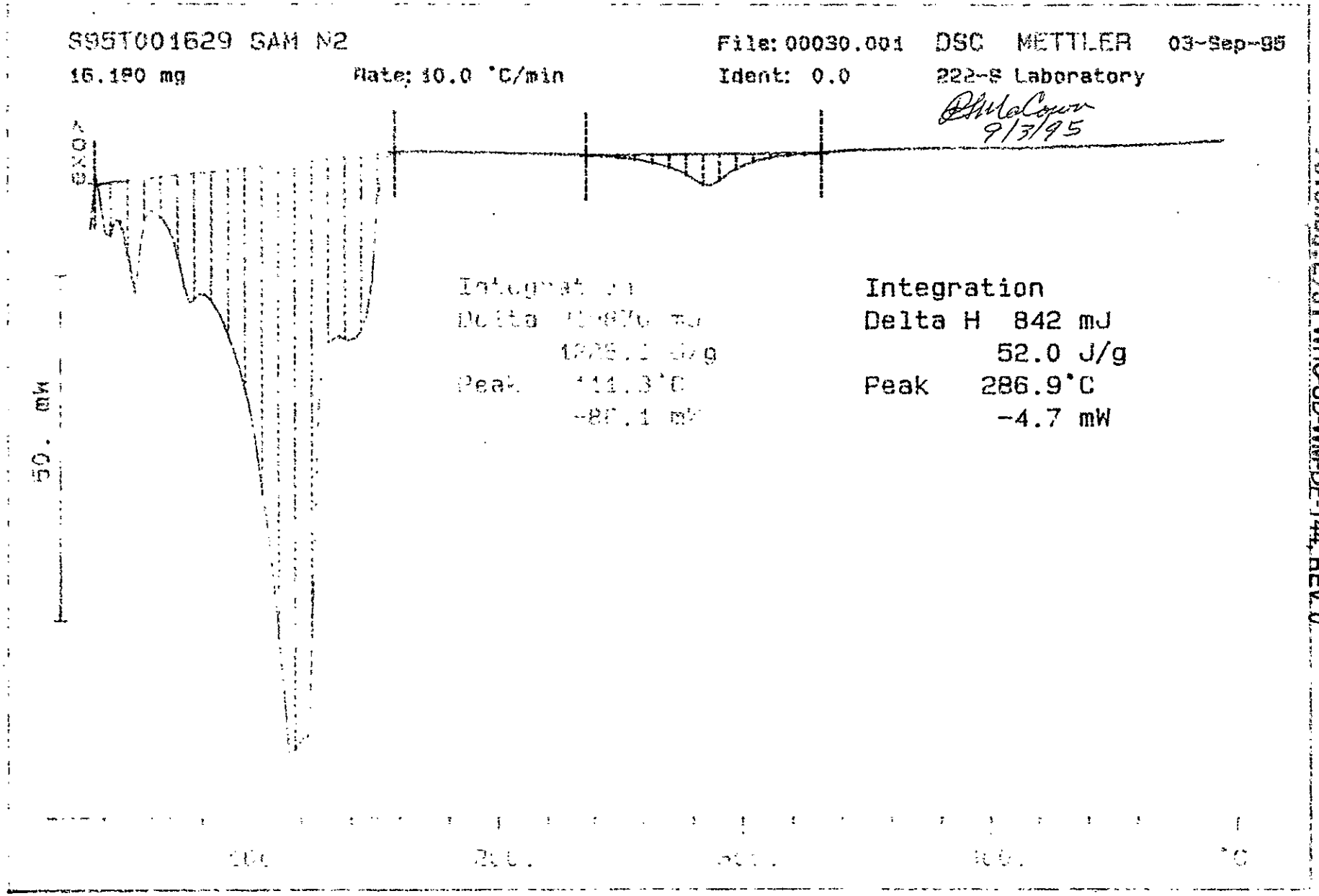
S95T001629 SAM has endotherms 1228 J/g at 111.3°C and 52.0 J/g at 286.9°C; Dup has endotherms of 1141.0 J/g at 115.3°C and 45.2 J/g at 285°C. JMF

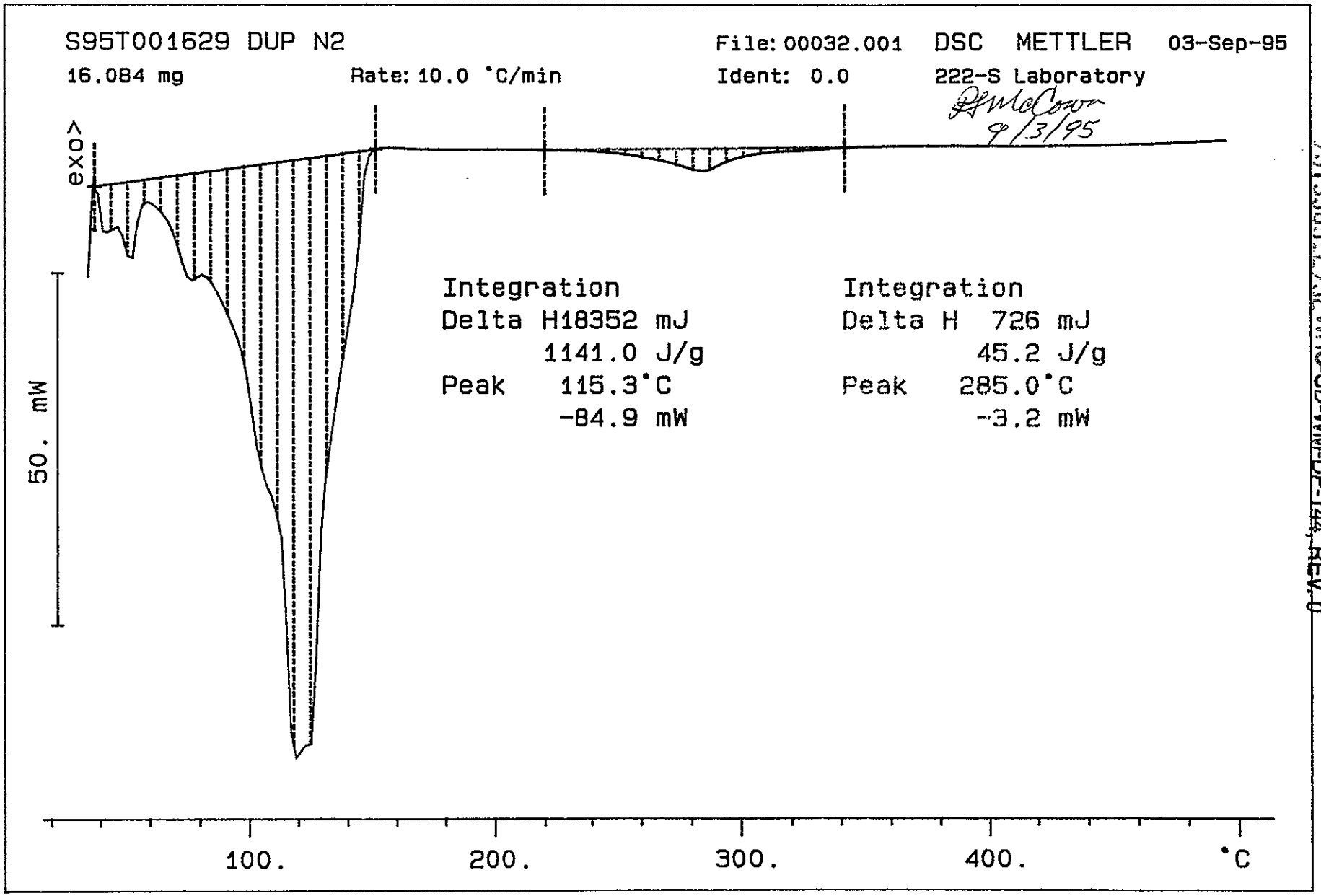
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.











LABCORE Data Entry Template for Worklist# 2184

Analyst: R J McCown **Instrument:** TGA0 1 **Book #** 65N8A

Method: LA-560-112 Rev/Mod B-0 9-28-95BDV

Worklist Comment: Please run ~~BY-110~~ T-109 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.74	60.27	N/A	%
95000121	T-109	2	SAMPLE	S95T001618	0		TGA-01	SOLID	N/A	39.37		%
95000121	T-109	3	DUP	S95T001618	0		TGA-01	SOLID	39.37	45.76	N/A	%
95000121	T-109	4	SAMPLE	S95T001629	0		TGA-01	SOLID	N/A	48.87		%
95000121	T-109	5	DUP	S95T001629	0		TGA-01	SOLID	48.87	49.30	N/A	%

Final page for worklist # 2184

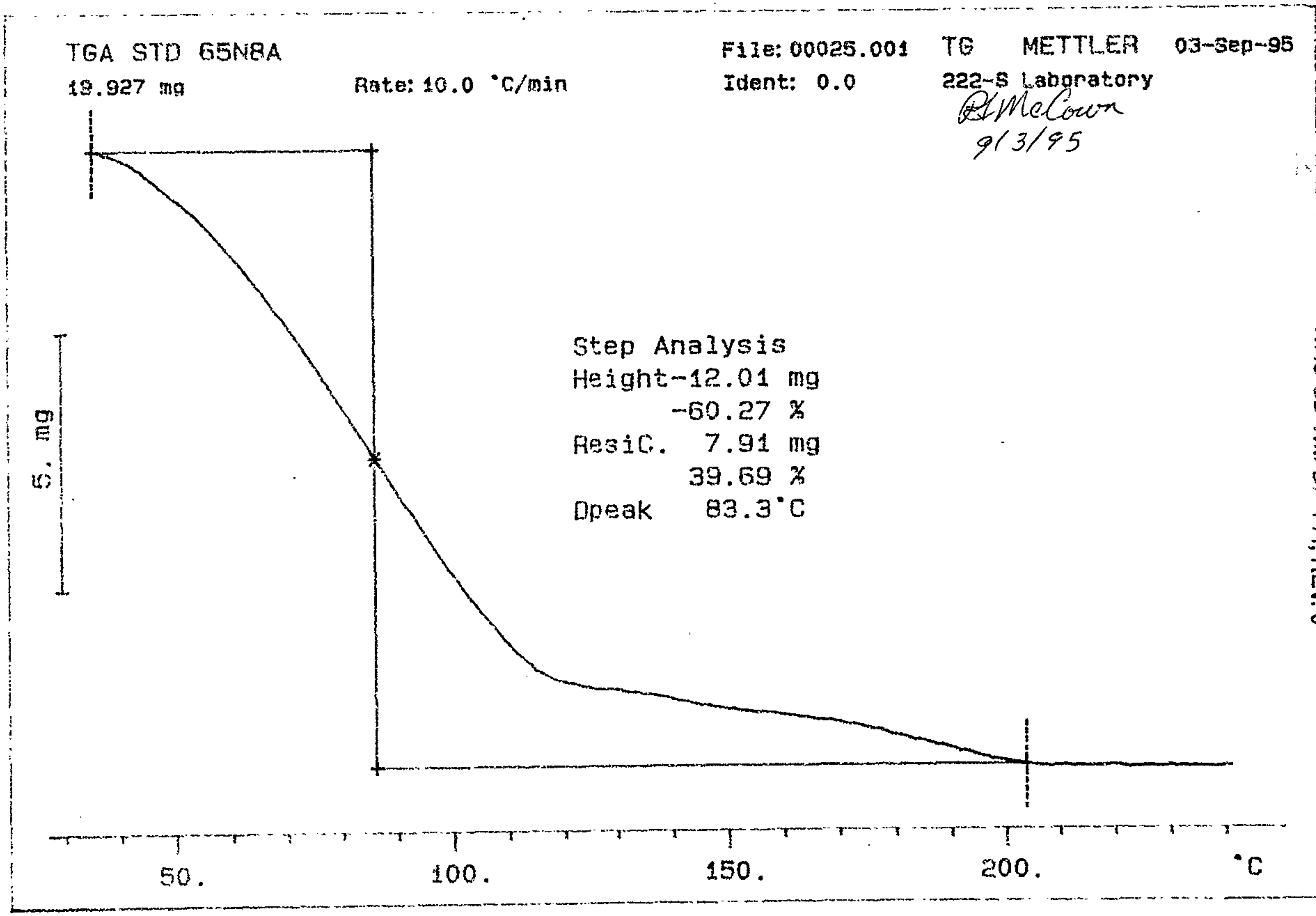
R J McCown 9/3/95
Analyst Signature **Date**

Analyst Signature 9-5-95 **Date**

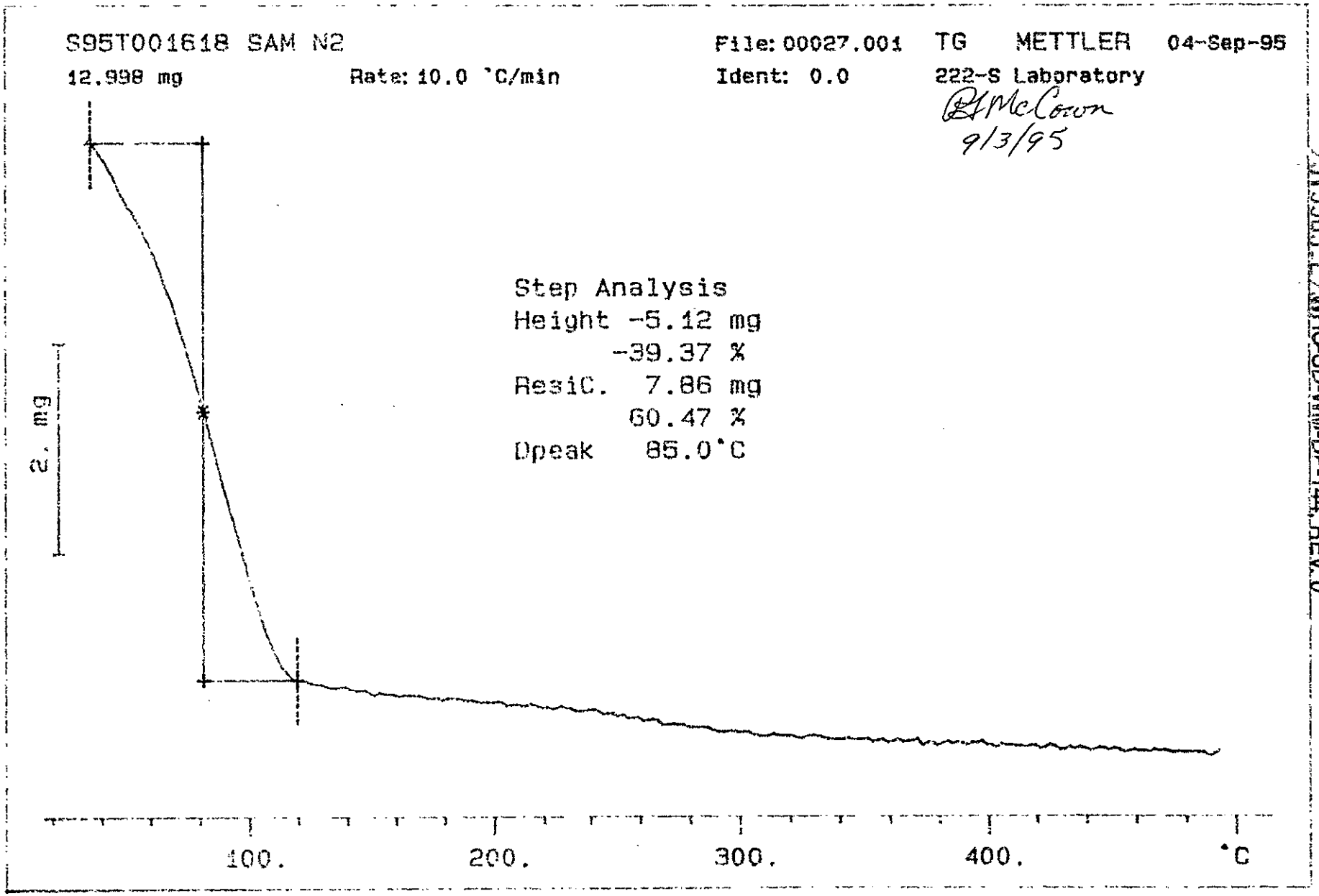
Verified 9/5/95. J. M. Fuge

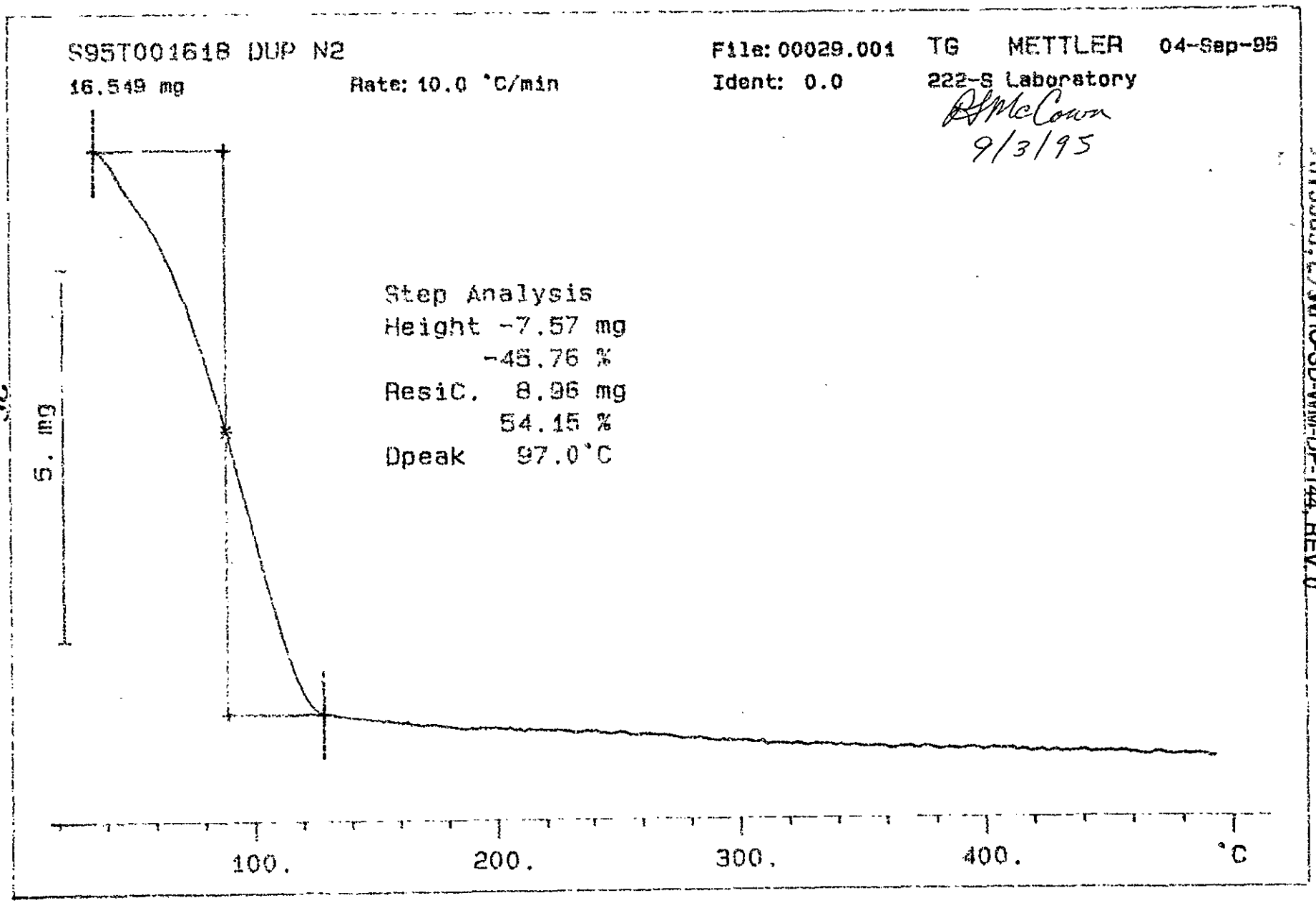
Data Entry Comments:

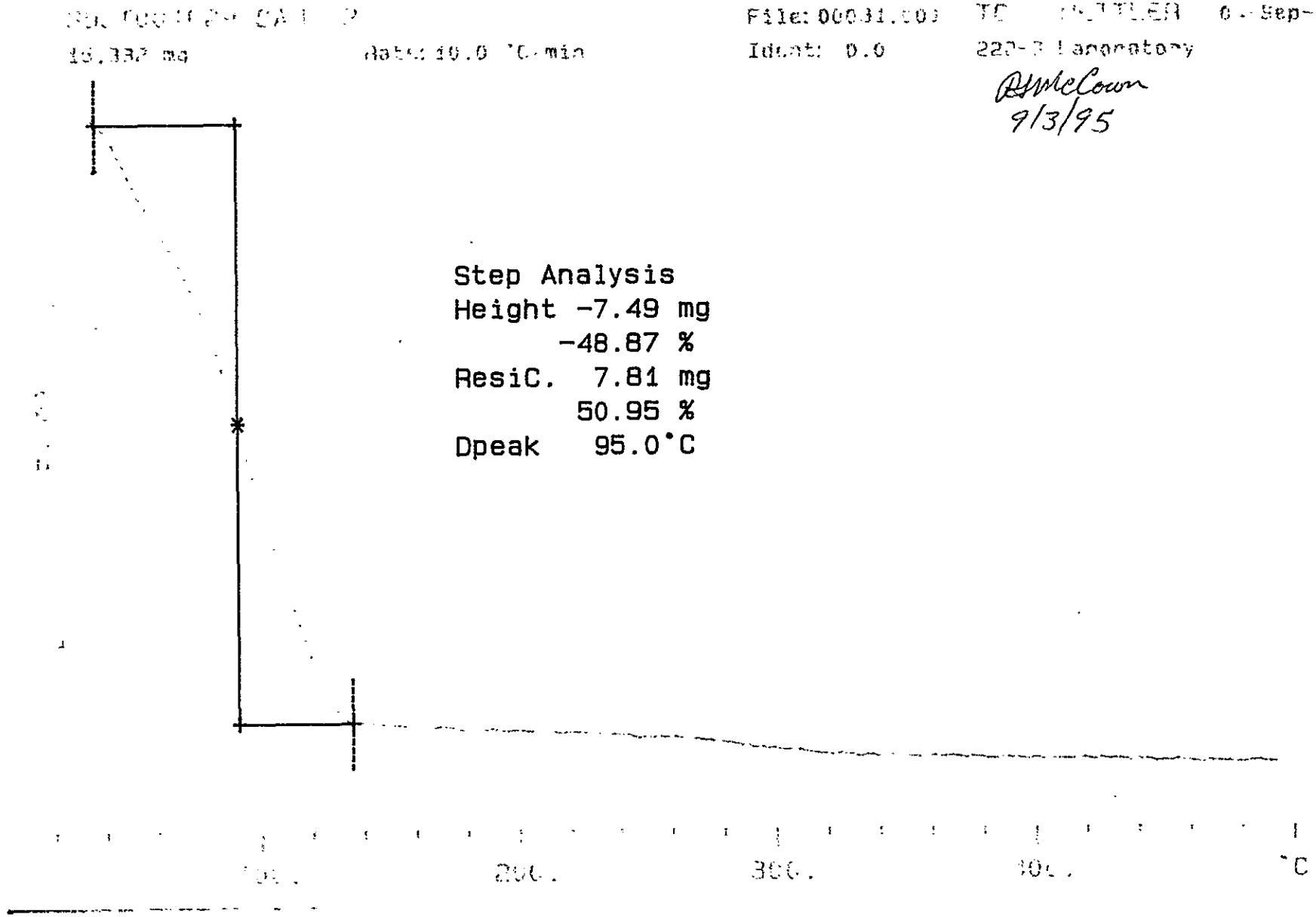
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.



9513383.2954

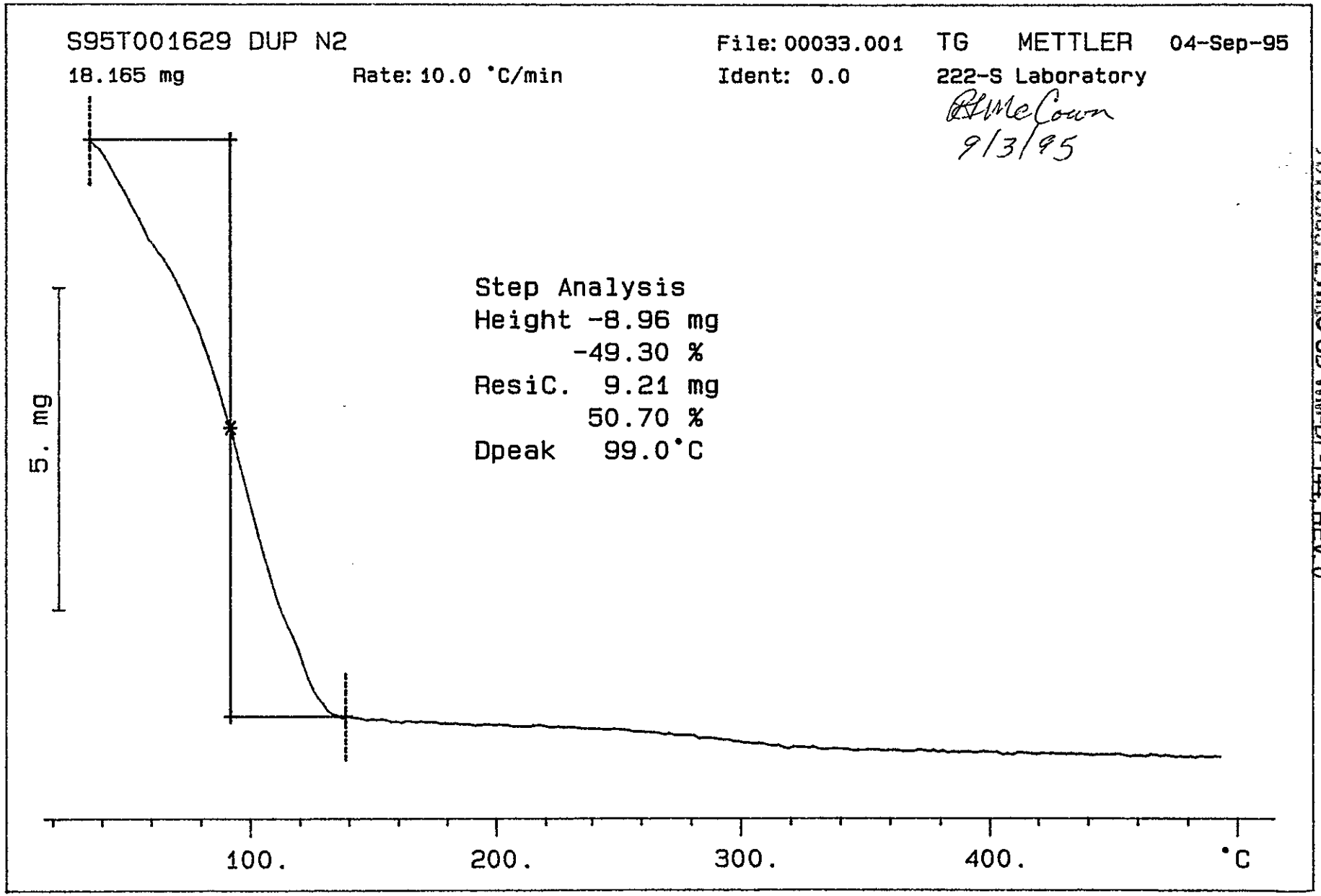






DS McCown
9/3/95

27



9513383.2959

LABCORE Data Entry Template for Worklist# 2195

Analyst: JDS **Instrument:** TGA00 1 **Book #** 65N8A

Method: LA-560-112 Rev/Mod B-0 9-19-95 BDV

WHC-SD-WM-DP-144, REV. 0

Worklist Comment: Please run T-109 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.74	60.39	N/A	%
95000121	T-109	2 SAMPLE	S95T001597	0		TGA-01	SOLID	N/A	15.57		%
95000121	T-109	3 DUP	S95T001597	0		TGA-01	SOLID	15.57	16.87	N/A	%
95000121	T-109	4 SAMPLE	S95T001600	0		TGA-01	SOLID	N/A	12.70		%
95000121	T-109	5 DUP	S95T001600	0		TGA-01	SOLID	12.70	12.21	N/A	%

Final page for worklist # 2195

B D Valenzuela for JDS
Analyst Signature **Date** 9-19-95

Analyst Signature **Date** 9-20-95

Verified by Blandina Valenzuela 9-21-95

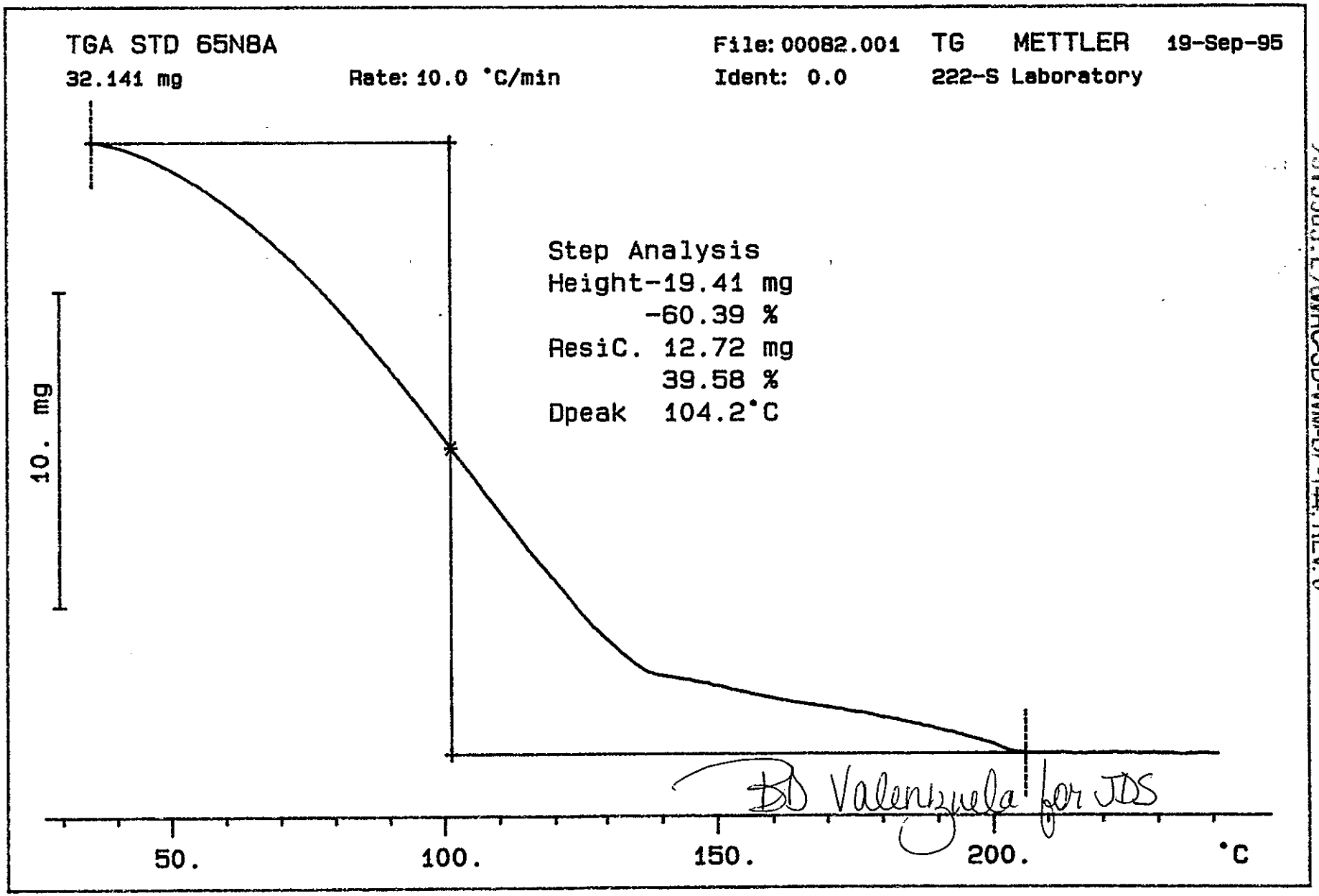
Data Entry Comments: S95T001597 produced second and third weight loss steps. The second weight loss step of 25.41% occurred at approximately 120°C and the third step of 2.79% occurred at 250°C. The sharp dip in the curve is due to a door being slammed shut, and will not affect the validity of the results.

S95T001600 produced a second and third weight loss steps. The second weight loss step of 37.41% occurred at approximately 140°C, and the third step of 2.40% occurred at approximately 290°C.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 30 TO 34.

BEST AVAILABLE COPY



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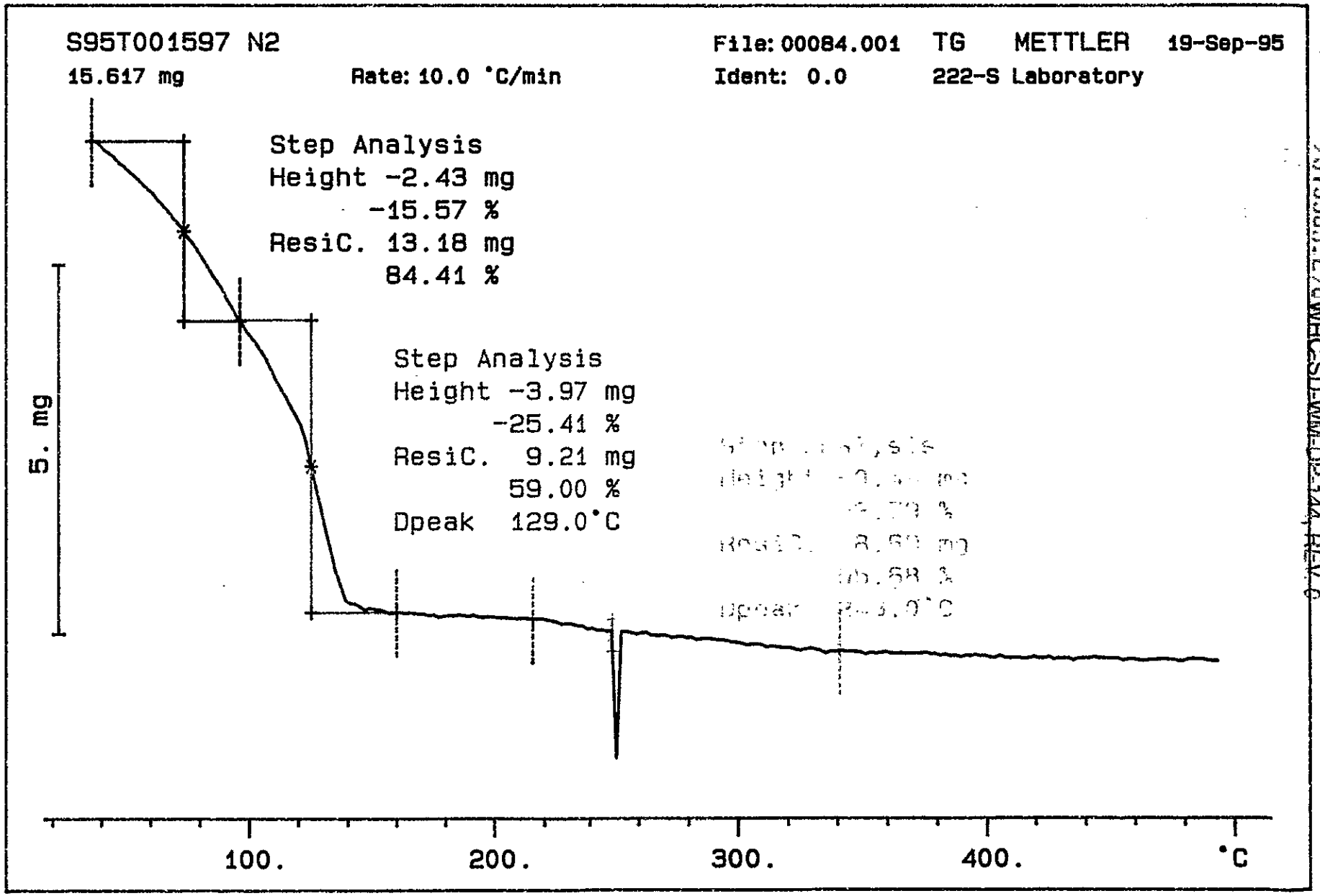

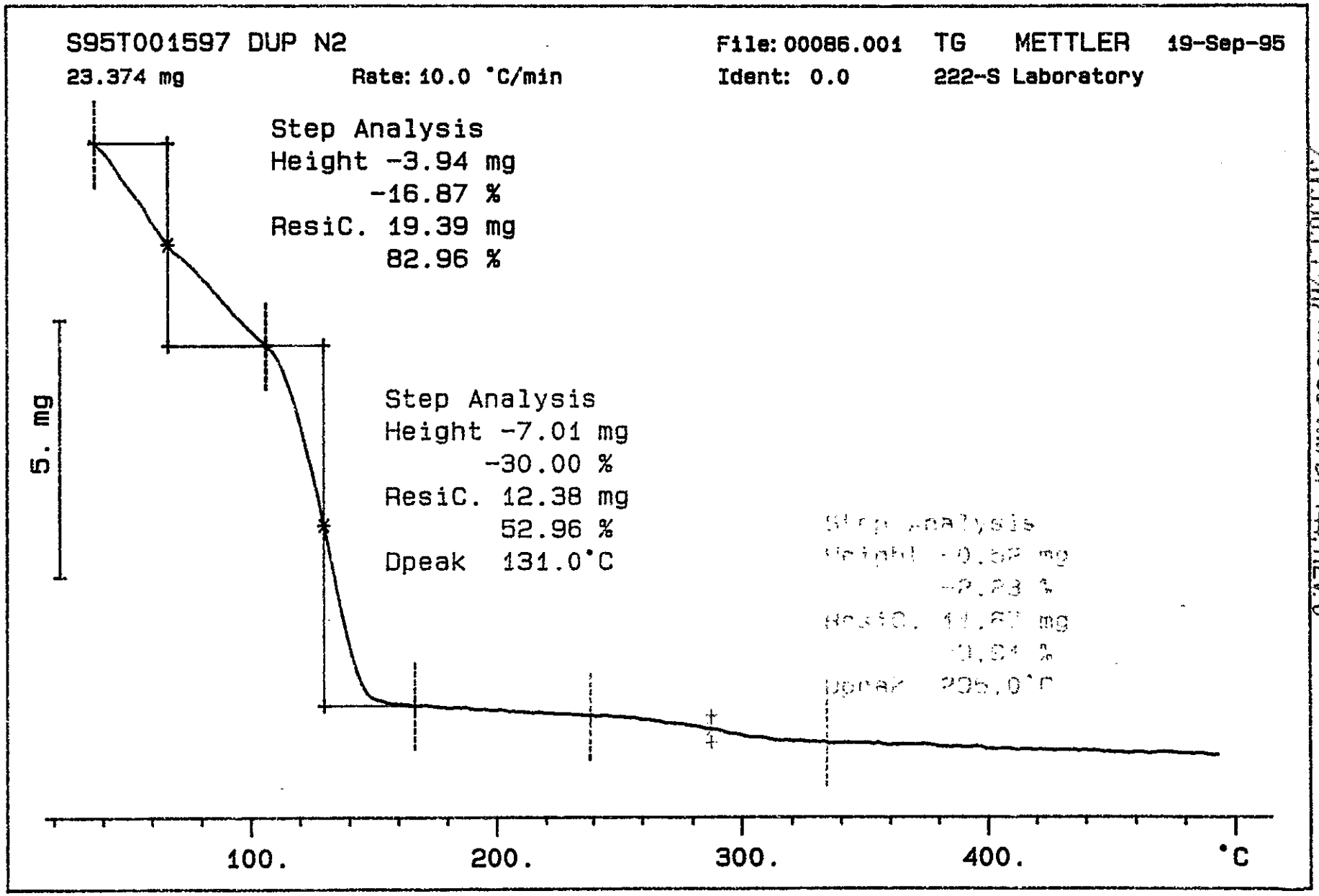

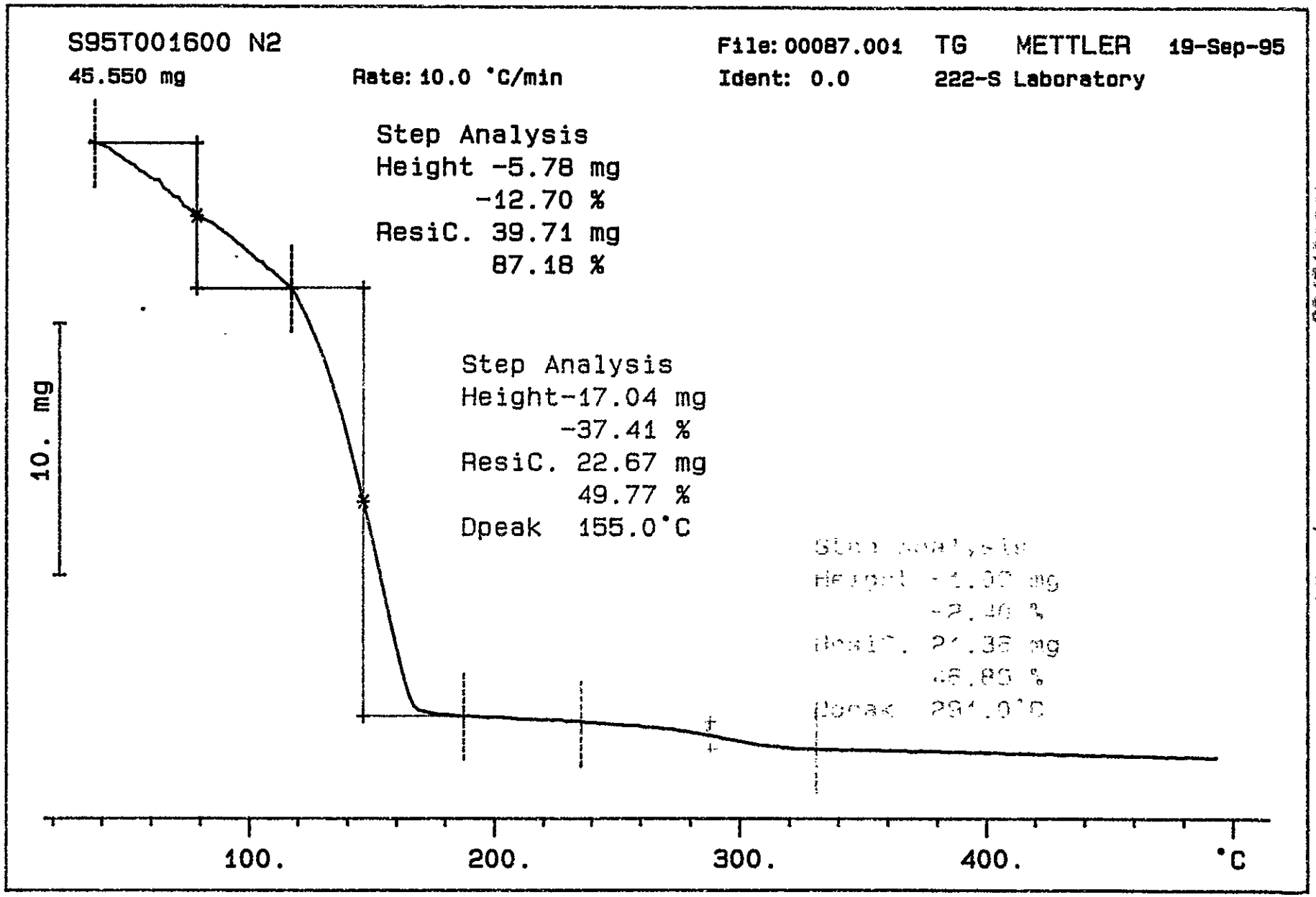

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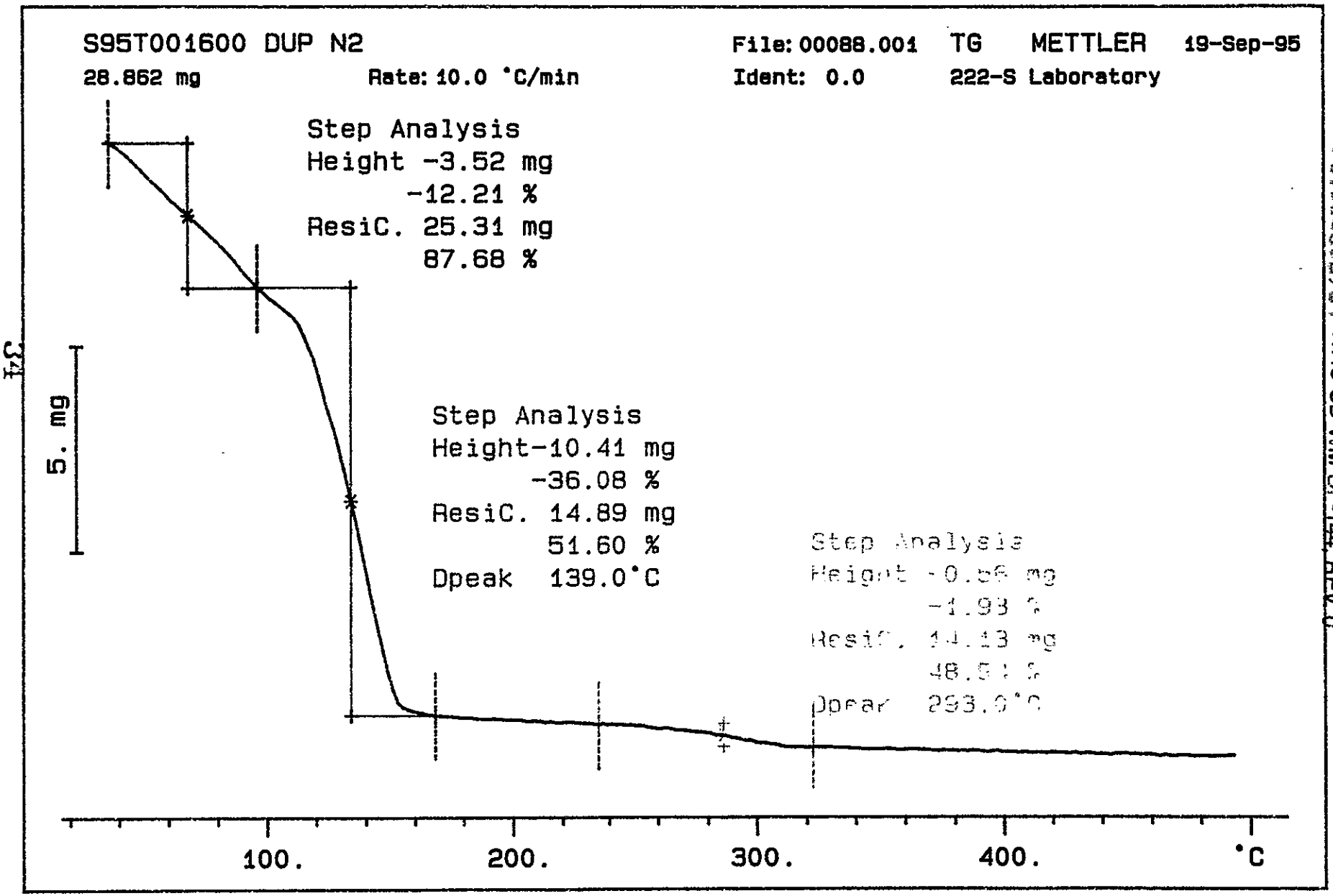


LABCORE Data Entry Template for Worklist# 2197

Analyst: PJM **Instrument:** TGA0 3 **Book #** 65218A

Method: LA-514-114 Rev/Mod C-0 WHC-SD-WM-DP-144, REV. 0

9-28-95 BDV

Worklist Comment: Please run ~~BY-110~~ T-109 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	SOLID	59.74	60.06	N/A	%
95000121	T-109	2	SAMPLE	S95T001616	0		TGA-03	SOLID	N/A	44.35		%
95000121	T-109	3	DUP	S95T001616	0		TGA-03	SOLID	44.35	46.50	N/A	%
95000121	T-109	4	SAMPLE	S95T001626	0		TGA-03	SOLID	N/A	49.11		%
95000121	T-109	5	DUP	S95T001626	0		TGA-03	SOLID	49.11	51.95	N/A	%

Final page for worklist # 2197

See Attached for Signature
Analyst Signature **Date** PJM 9/6/95

Analyst Signature **Date** 9-7-95

Verified 9/7/95. J. M. Fuyo

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

9513383.2966

LABCORE Data Entry Template for Worklist# 2197

Analyst: RJ McCown Rjm 9/3/95 **Instrument:** TGA0 _____ **Book #** 65W8A

Method: LA-~~560-112~~ 514-114 Rev/Mod C-0 9-24-95 jmc WHC-SD-WM-DP-144, REV. 0

Worklist Comment: Please run ~~BY-110~~ T-109 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	_____	_____	N/A	%
95000121	T-109	2	SAMPLE	S95T001616	0		TGA-01	SOLID	N/A	_____	_____	%
95000121	T-109	3	DUP	S95T001616	0		TGA-01	SOLID	_____	_____	N/A	%
95000121	T-109	4	SAMPLE	S95T001626	0		TGA-01	SOLID	N/A	_____	_____	%
95000121	T-109	5	DUP	S95T001626	0		TGA-01	SOLID	_____	_____	N/A	%

Final page for worklist # 2197

RJ McCown 9/3/95
Analyst Signature **Date**

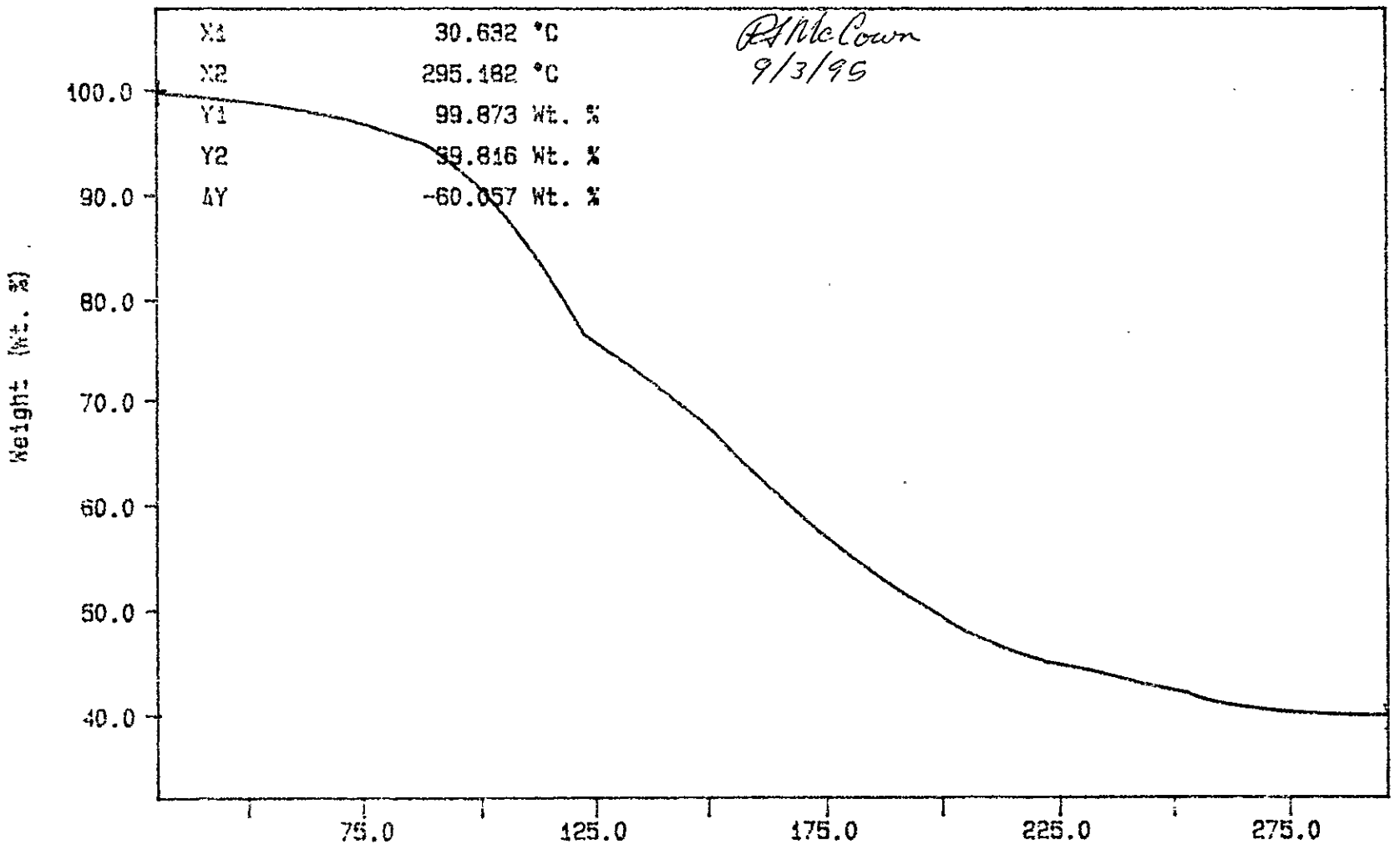
_____
Analyst Signature **Date**

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TER090301 Sun Sep 3 15:29:46 1995
Sample Weight: 26.081 mg
65N8-A Terliq

BEST AVAILABLE COPY



RJ McCown
9/3/95

N2 10C/MIN
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 17:00:45 1995

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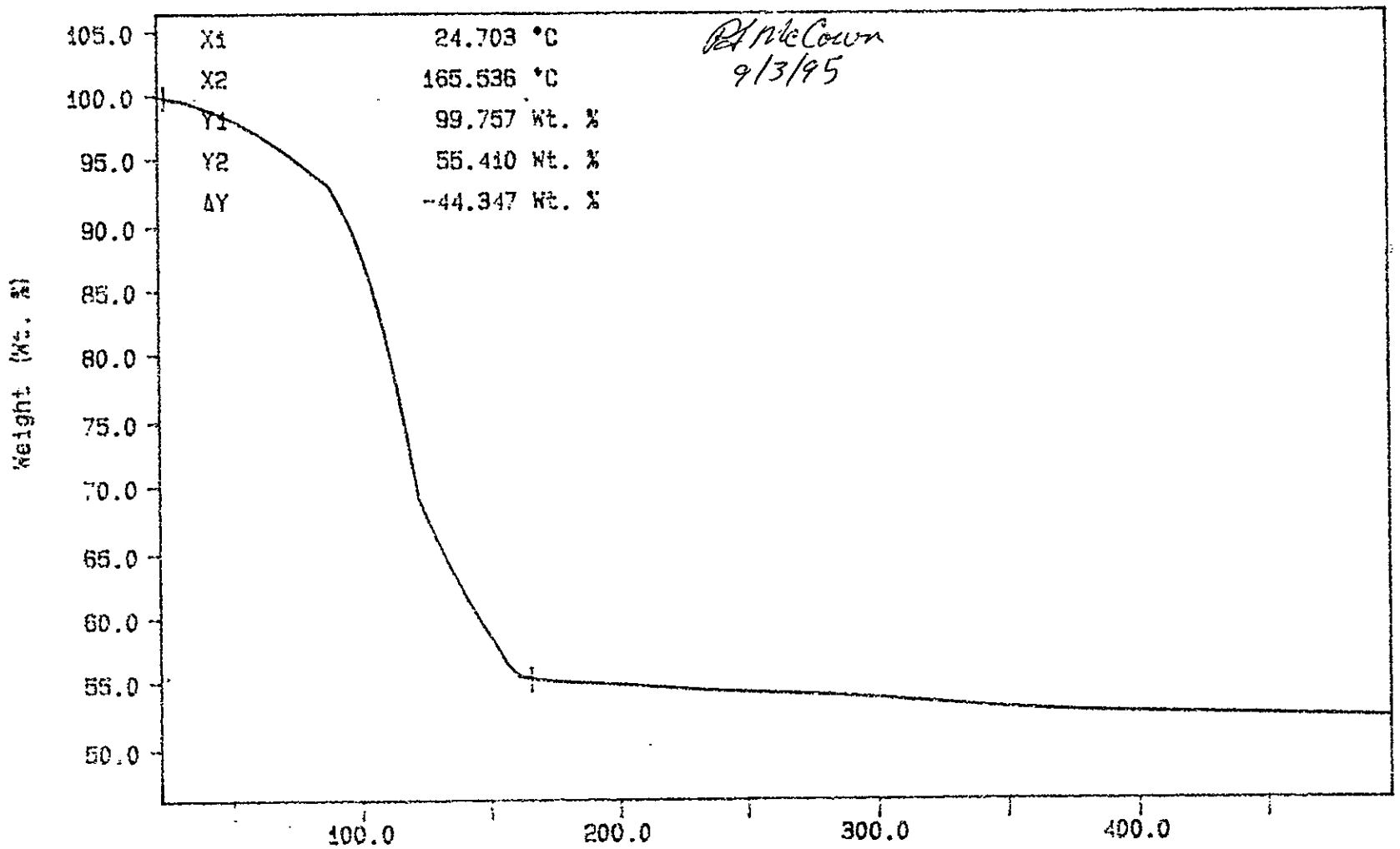
WHC-SD-WM-DP-144, REV. 0

9513383.2967

Curve 1: TGA
File info: SAM090301 Sun Sep 3 18:40:48 1995
Sample Weight: 8.665 mg
S95T001616

BEST AVAILABLE COPY



RJ McCown
9/3/95

N2 10C/MIN
TEMP1: 50.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2 400.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 18:41:56 1995

WHC-SD-WM-DP-144, REV. 0

9516383.2968

Curve 1: TGA
File info: SAM090302 Sun Sep 3 19:52:39 1995
Sample Weight: 9.192 mg
S95T001616 DUP

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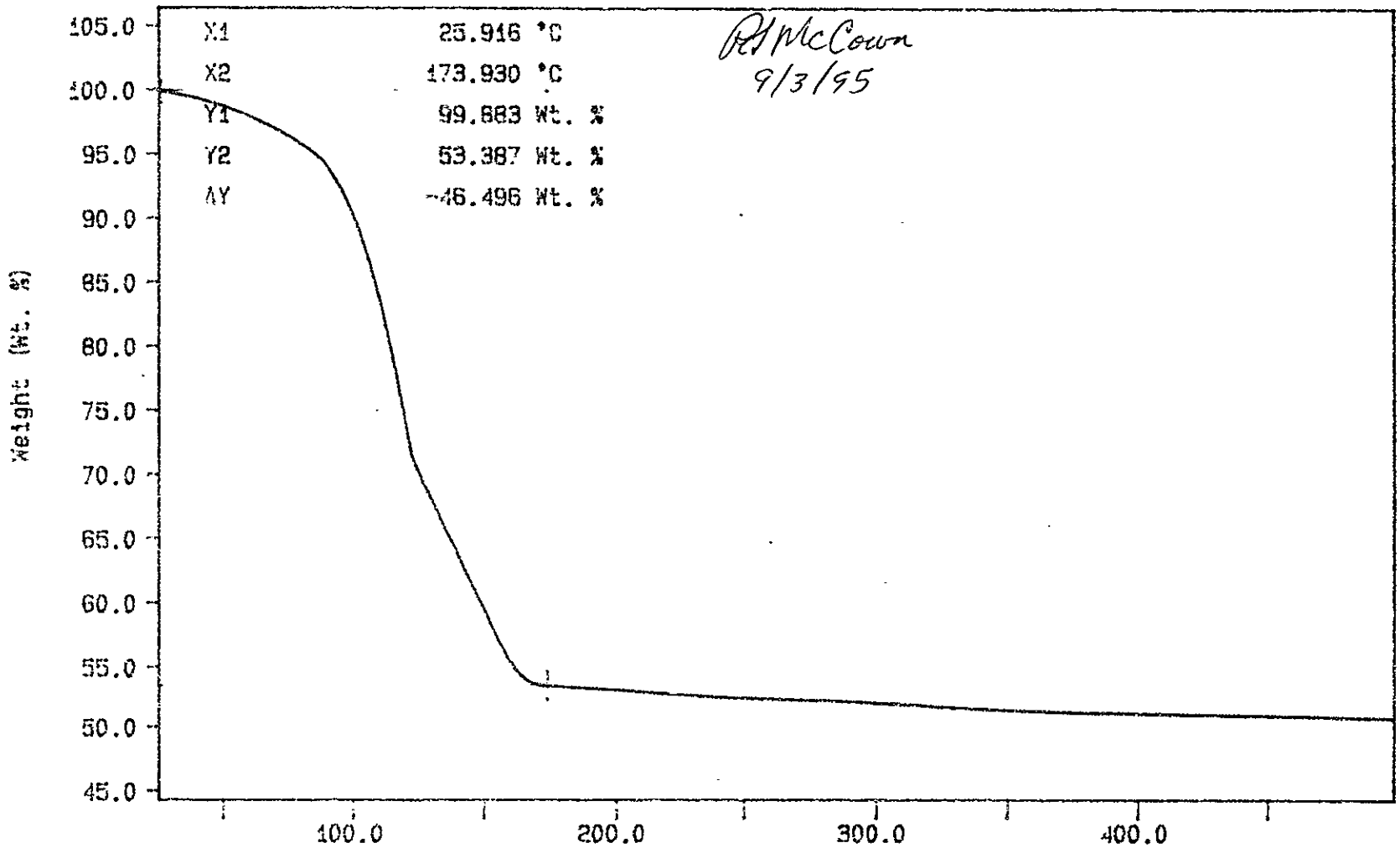

RJ McCown
9/3/95

N2 10C/MIN
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 20:05:53 1995

Curve 1: TGA
File info: SAM090303 Sun Sep 3 21:25:31 1995
Sample Weight: 12.544 mg
395T001626

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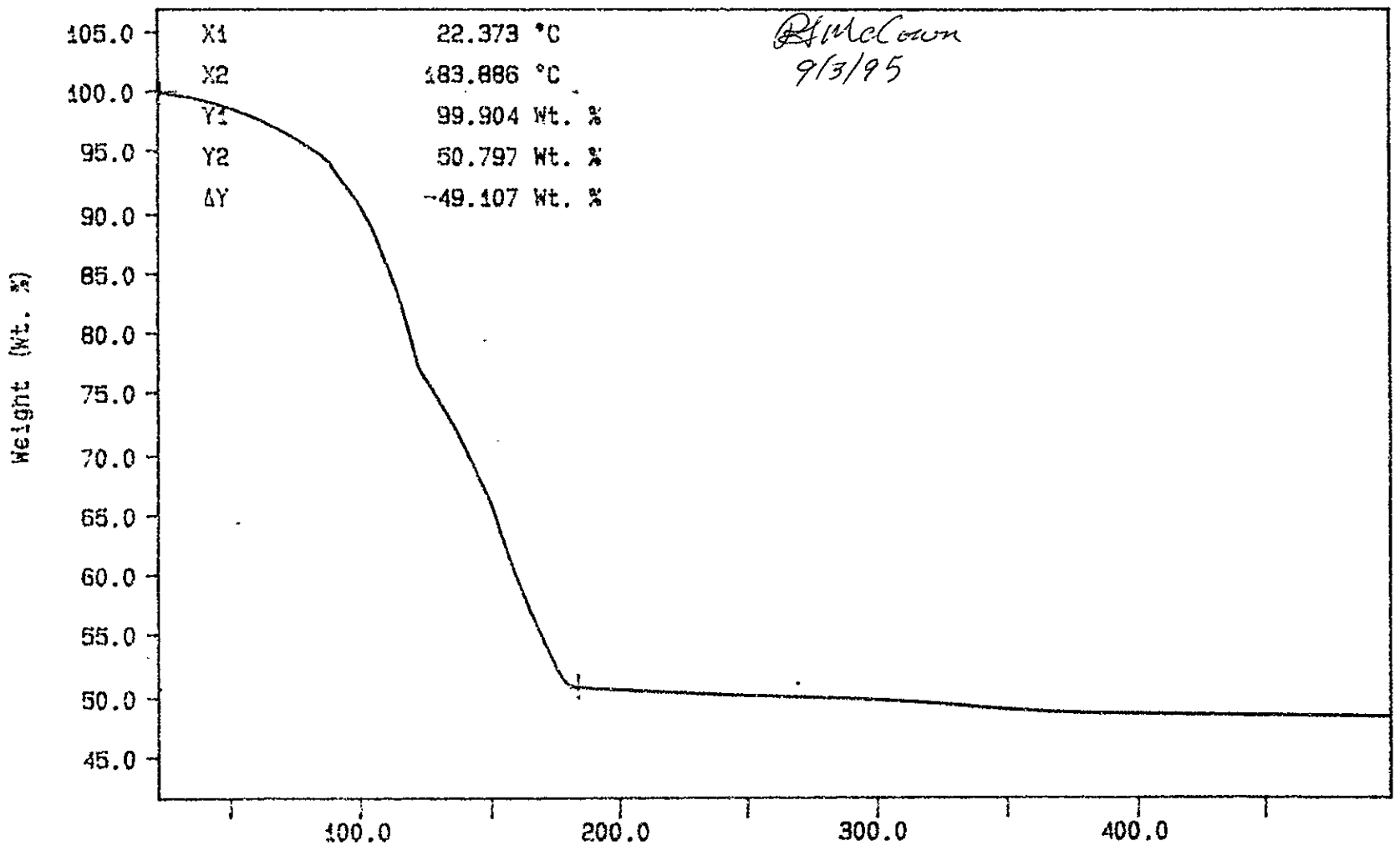

RJMcCown
9/3/95

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 21:26:31 1995

40

WHC-SD-WM-DP-144, REV. 0

9513383.2970

Curve 1: TGA
File Info: SAM090304 Sun Sep 3 22:37:05 1995
Sample Weight: 13.752 mg
S95T001626 DUPLICATE

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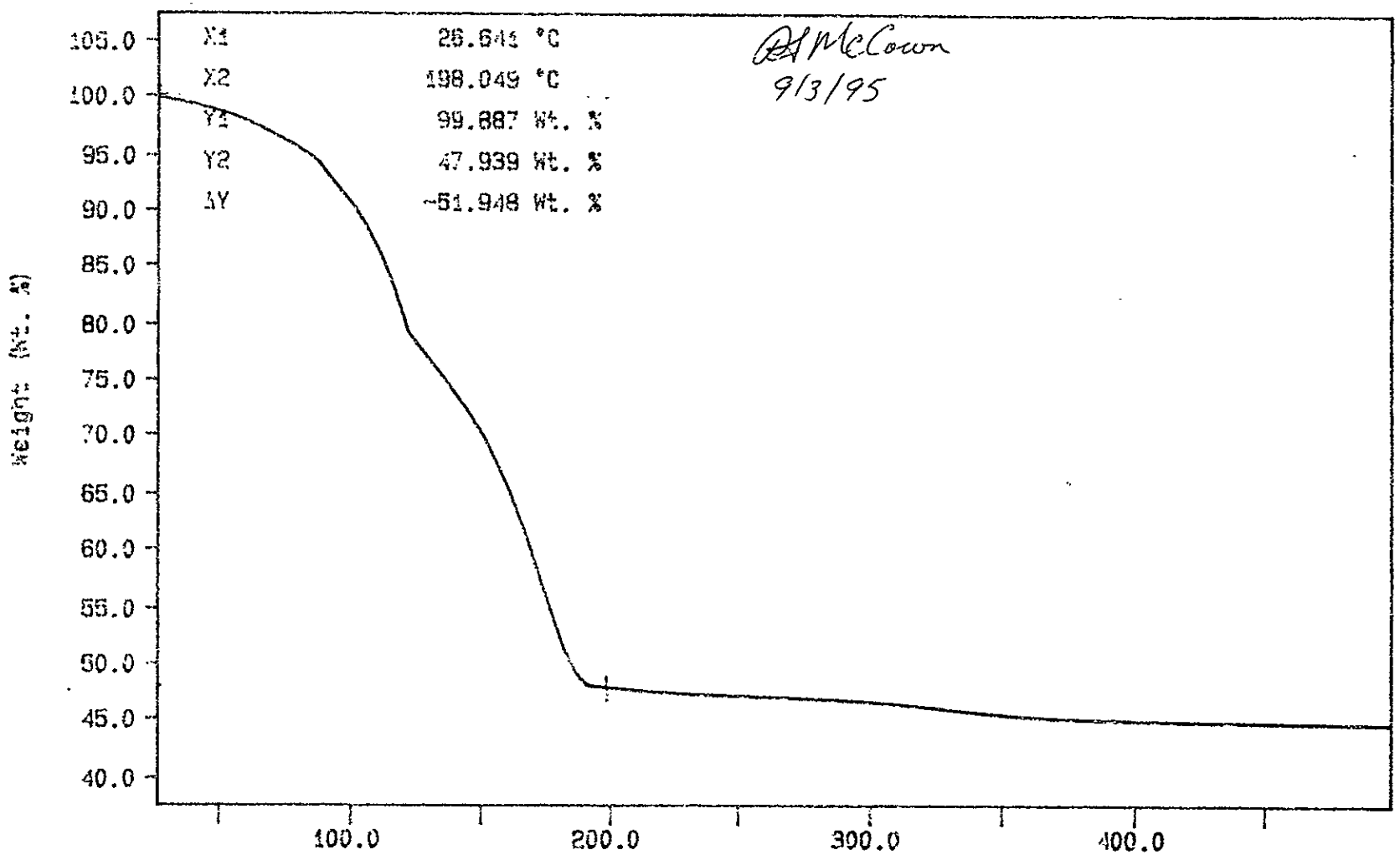

PJ McCown
9/3/95

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 22:40:59 1995

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9513383.2972

DISTRIBUTION SHEET

To Distribution	From Characterization Plans, Coordination and Reports	Page 1 of 2 Date: 09/19/95
Project Title/Work Order WHC-SD-WM-DP-144, Rev. 0, "45-Day Safety Screening Results for Tank 241-T-109, Auger Samples 95-AUG-040 and 95-AUG-041"		EDT NO.: EDT-613120 ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Pacific Northwest Laboratory			
J. R. Gormsen	K7-28		X
S. J. Harris	K7-22	X	
K. L. Silvers	P7-27		X
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
Westinghouse Hanford Company			
J. N. Appel	G3-21		X
H. Babad	S7-30	X	
R. J. Cash	S7-15	X	
J. M. Conner	R2-12	X	
G. D. Forehand	S7-31		X
C. E. Golberg	H5-49		X
V. W. Hall	T6-03		X
D. C. Hetzer	S6-31		X
L. Jensen	T6-07	X	
G. D. Johnson	S7-15	X	
N. W. Kirch	R2-11	X	
J. G. Kristofzski	R2-12	X	
M. J. Kupfer	H5-49	X	
E. J. Lipke	S7-14		X
N. G. McDuffie	S7-15	X	
J. E. Meacham	S7-15	X	
P. M. Morant	H4-25	X	
B. C. Simpson	R2-12		X
D. A. Turner	S7-15	X	
J. A. Voogd	H5-03		X
L. R. Webb	T6-06		X
Central Files	A3-88	2	
EDMC	H6-08	X	
LTIC	T6-03		X
TCRC	R2-12	X	
TFIC (Tank Farm Information Center)	R1-20		X

9513383.2073

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To Distribution	From Characterization Plans, Coordination and Reports	Page 2 of 2 Date: 09/19/95
Project Title/Work Order WHC-SD-WM-DP-144, Rev. 0, "45-Day Safety Screening Results for Tank 241-T-109, Auger Samples 95-AUG-040 and 95-AUG-041"		EDT NO.: EDT-613120 ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Washington State Department of Ecology Single-Shell Tank Unit Manager A. B. Stone	B5-18	X	
Environmental Protection Agency Single-Shell Tank Unit Manager D. R. Einan	B5-01	X	
U. S. Department of Energy Jim Poppiti 12800 Middlebrook Rd. Trevion II, EM-36 Germantown, MD 20874			X
Los Alamos Technical Associates A. T. DiCenso 309 Bradley Blvd. Richland, WA 99352		X	